(Model.)

P. MATHES.

DOOR LATCH.

No. 276,255. Patented Apr. 24, 1883.

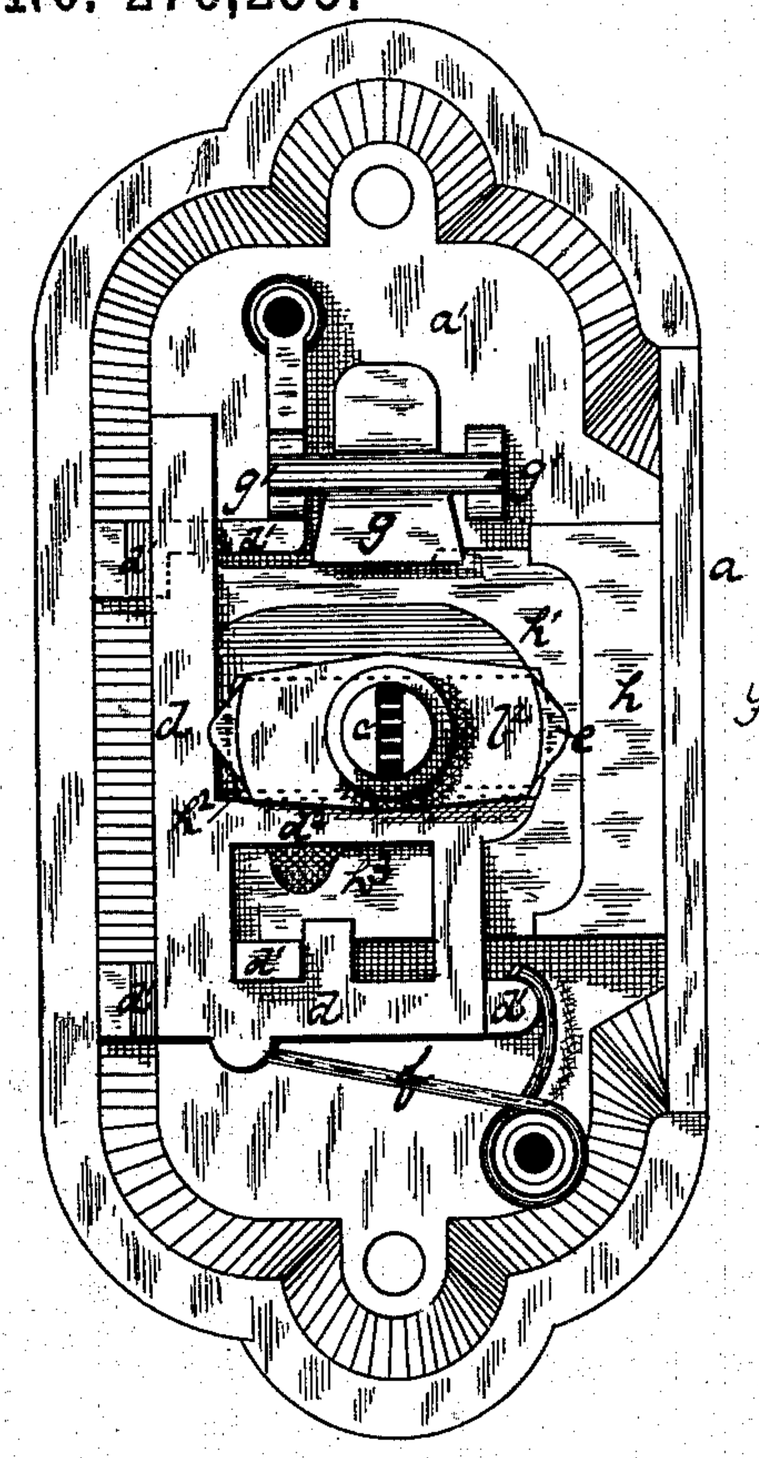

Fig. 1.

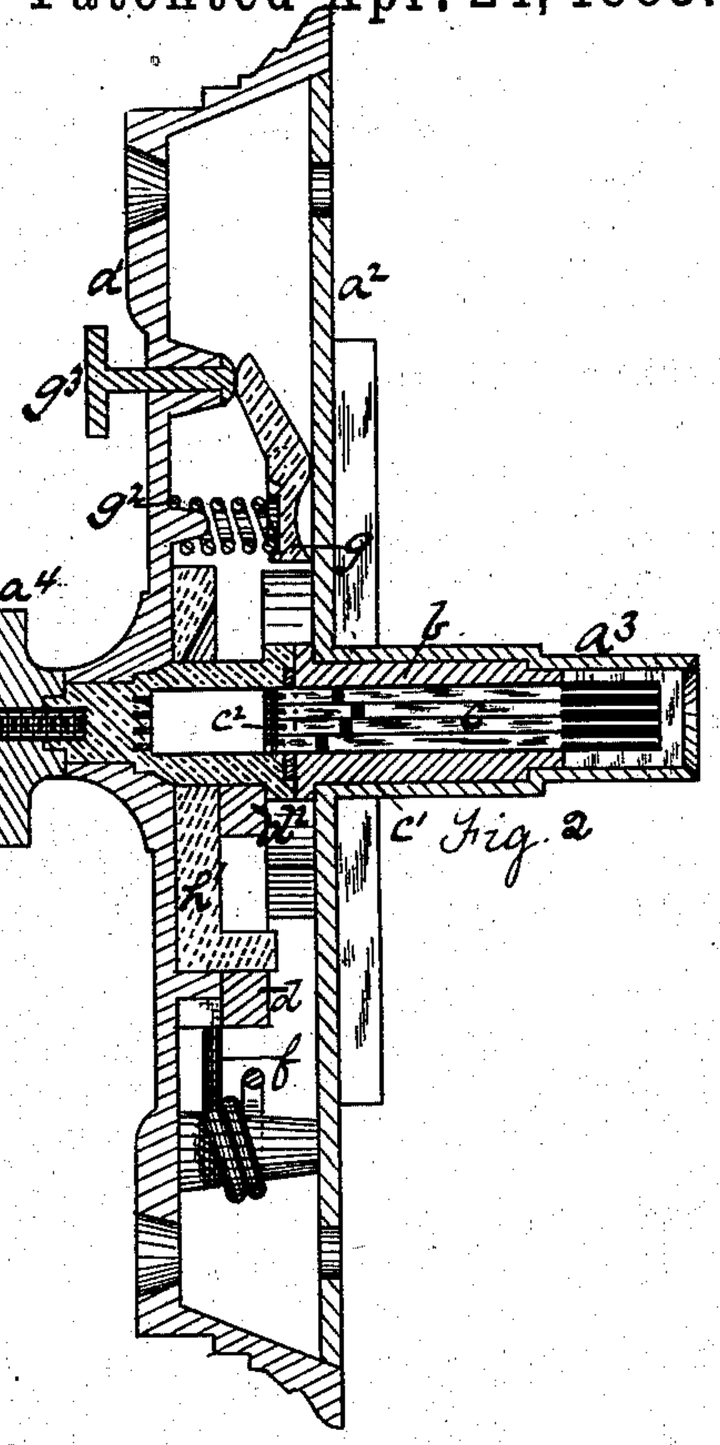

Fig. 2

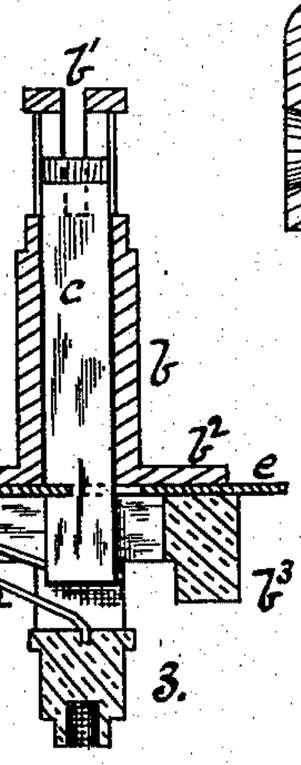

Fig. 3.

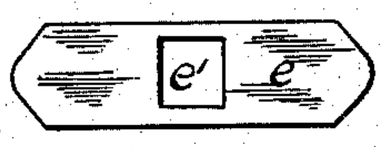

Fig. 4.

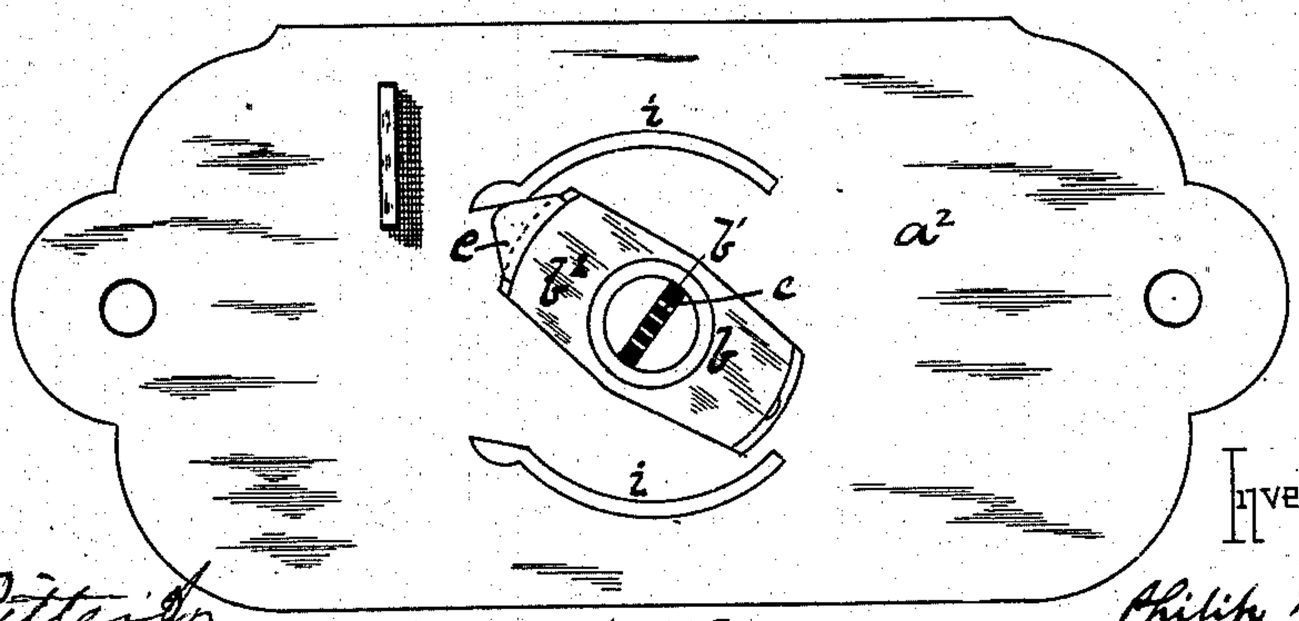

Fig. 5

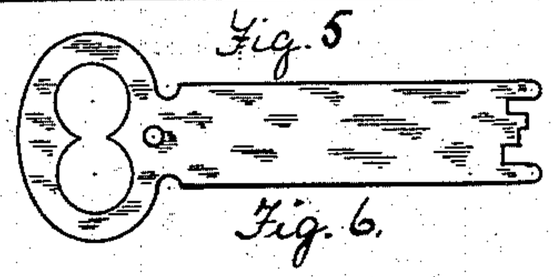

Fig. 6.

Witnesses—

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Inventor—

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by his attys

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UNITED STATES PATENT OFFICE.

PHILIP MATHES, OF IDLEWOOD, PENNSYLVANIA.

DOOR-LATCH.

SPECIFICATION forming part of Letters Patent No. 276,255, dated April 24, 1883.

Application filed November 18, 1882. (Model.)

To all whom it may concern:

Be it known that I, PHILIP MATHES, of Idlewood Station, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Door-Locks; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a plan view of my improved lock with the back plate removed. Fig. 2 is a longitudinal section. Fig. 3 is a vertical section of the barrel and slide. Fig. 4 is a plan view of the slide. Fig. 5 is a view of the inner side of the back plate. Fig. 6 is a view of the key.

Like letters of reference indicate like parts in each.

The case *a* has a face-plate, *a'*, and a back plate, a^2, the face-plate and sides being preferably one casting, and the back plate a removable piece. The lock has a barrel, *b*, which contains the tumblers *c*, and is slotted at one end, as at *b'*, for the insertion of the key. Bearing against the lower end of the tumblers are springs c^2, which hold the tumblers up in place, so as to restore them to position when the key is removed. The tumblers are slotted, as at *c'*, for a purpose hereinafter specified. On the barrel *b* is a cross-piece, b^2, which is longitudinally slotted for the reception of a slide, *e*, which slide is slotted centrally, as at *e'*, for the passage through it of the tumblers *c*. On the lower side of the cross-piece or T b^2 is a downwardly-projecting pin, b^3, the purpose of which is to throw the bolt *h* when the barrel is turned. The bolt *h* is provided with a plate, *h'*, slotted, as at h^2, for the passage of the lower end of the barrel, and recessed, as at h^3, for the engagement of the pin b^3. When the barrel is turned the pin b^3, working in the recess h^3, throws the bolt in or out, as the case may be. At the side of the plate *h'* is a slide, *d*, moving between guide-lugs *d'*, and having a straight side, d^2, which operates against the cross-bar b^2 to throw the barrel either way after the bar b^2 has passed the center. The slide *d* is operated by a spring, *f*, which presses against it in the usual way. Above or below the barrel *b* is a stop, *g*, pivoted at *g'*, and held up at the front end by a spring, g^2, which bears against the inner side of the face-plate *a'* and against the stop. In the face of the plate *a'* is a push-button, g^3, the stem of which operates against the rear end of the stop, for the purpose of turning it on its pivots and compressing the spring g^2. The position of the stop *g* with relation to the cross piece or bar b^2 on the barrel is such that the cross-bar b^2 can be turned past without coming in contact with its edge. It is designed, however, to act upon the slide *e*, which, being longer than the bar b^2, projects from it ends. On the inner face of the back plate, a^2, are two curved guides, *i*, which stand at the sides of the opening through which the barrel projects. On the outer side of the back plate, a^2, is a tube, a^3, designed to contain that portion of the barrel in which the tumblers are placed. When the lock is placed on the door the tube a^3 is inserted into the hole bored to receive it. On the other end of the barrel is a knob, a^4, by which the latch may be turned on the inside of the door, the key end of the barrel projecting through the door and being opened from the outside by the use of a key.

Thus constructed, the operation of my improvement is as follows: The turning of the barrel by means of a knob or by means of a misfit key causes the bar b^2 to swing around until the end of the slide *e* strikes against the face of the stop *g*, which prevents it turning farther, and thus prevents the bolt from being withdrawn and the door opened. Then, if the person is on the inside of the door, the stop *g* may be thrown out of the way of the slide *e* by pressing in the push-button g^3. This causes the stop to be thrown to the side of the end of the slide *e* and permits the barrel to turn and to shoot the bolt. As soon as the finger is removed from the push-button g^3 the spring g^2 restores the stop to its proper position, and so locks the bolt either open or shut. If, however, the person is on the outside and makes use of the proper key, the insertion of the key presses the tumblers down in the barrel until the slots *c'* therein are all brought together opposite to the slide *e*. Then as the barrel is revolved by the key the end of the slide *e* comes in contact with the stop *g* and is forced back by the stop into the bar b^2, the slots *c'* permitting such movement. After the end of the

slide *e* has been caused to pass the stop *g* by the turning of the barrel, the other end, which projects in the opposite end of the bar b^2, comes in contact with one of the curved guides *i* on the inner side of the back plate, a^2, and is pushed back again into its normal position in the bar b^2. This also forces the slide out of the slot *c'* in the tumblers and leaves them free to rise in the barrel when the key is withdrawn. Thus it will be seen that when the door is opened from the inside it is necessary to use some means for removing the stop from the path of the slide *e*, and when the door is opened from the outside the insertion of the key brings the slots in the tumblers in line, so as to permit the slide *e* to be forced backward by the stop, and that the slide *e* is restored to its proper position, upon the further rotation of the barrel, by the operation of the curved guides *i*. The curved guides *i*, or some other similar device, are necessary to restore the slide *e* to its normal position, as otherwise it would remain standing in the slots *c'* in the tumblers and prevent the tumblers from rising to their normal position.

I do not limit myself to the particular form of stop *g* shown, as a sliding or other form of stop may be used to accomplish the same purpose. I prefer, however, the form shown, as that is at once cheap and easy to make and is not liable to get out of order, and requires only the pressure of the button to throw it out of the way. Any form of stop which would require to be drawn away from the path of the radially-moving slide *e* would necessitate two movements of the hand in opening the door, which is obviated by the present construction.

My improved lock is simple and cheap in its construction and efficient in its operation.

Instead of the circular guides, I can, if desired, use a spring for restoring the slide to its normal position.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a dead-lock, the combination of a rotating barrel having a radial projection with a movable stop arranged in the case at the side of the barrel, and devices for throwing the said stop into and out of the path of said projection, substantially as and for the purposes described.

2. In a dead-lock, the combination of a rotating barrel having a radial slide projecting from its sides, with a movable stop arranged in the case at the side of the barrel and capable of being thrown into and out of the path of said slide, for the purpose of forcing the slide inward, and devices for restoring the slide to its normal position, substantially as and for the purposes described.

3. In a dead-lock, the combination of a rotating barrel having a radial projection, with a pivoted stop arranged within the case at the side of the barrel and operated from the outside by a push-button and restored to place by a spring, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 13th day of November, A. D. 1882.

PHILIP MATHES.

Witnesses:

W. B. CORWIN,

T. B. KERR.