(No Model.)

M. MICHELS & J. PAULY.

ALARM LOCK.

No. 459,069. Patented Sept. 8, 1891.

Fig. 1.

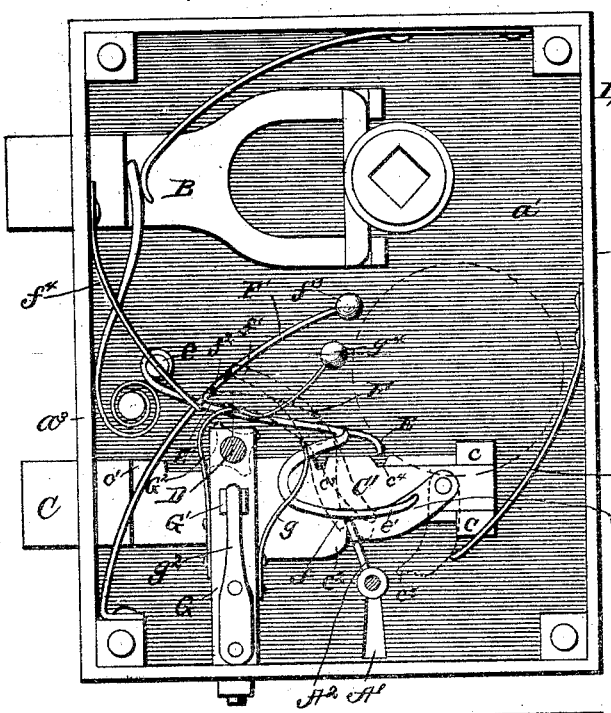


Fig. 3.

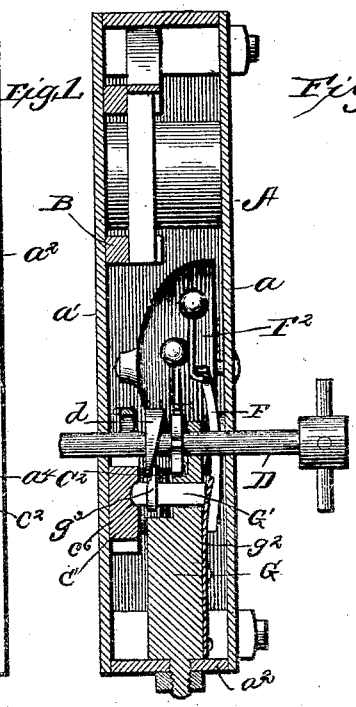


Fig. 2.

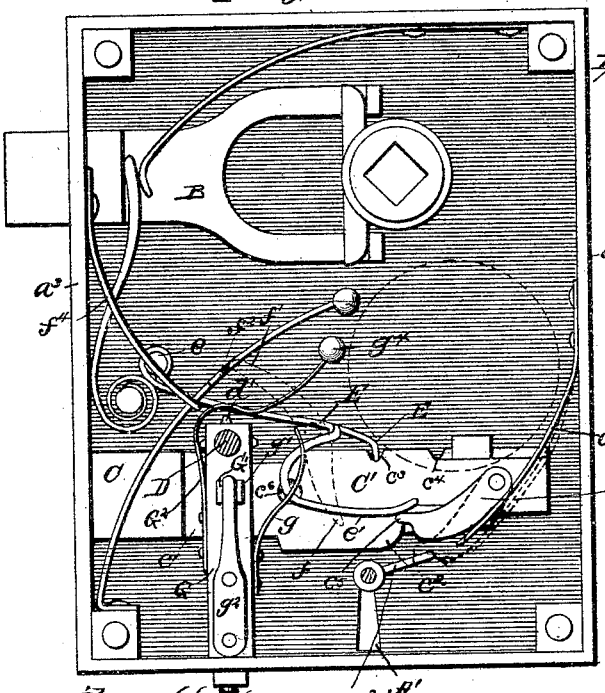
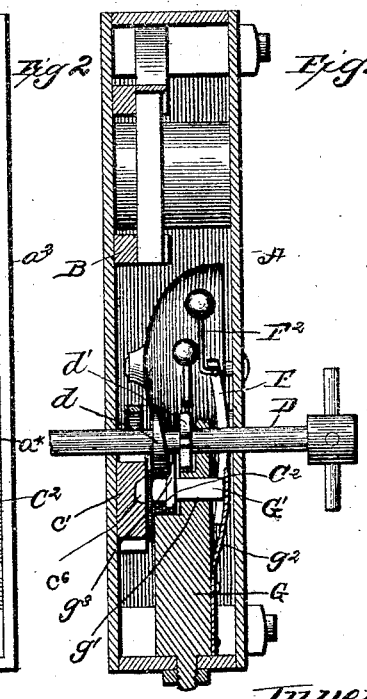


Fig. 4.



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UNITED STATES PATENT OFFICE.

MICHEL MICHELS AND JOSEPH PAULY, OF CHICAGO, ILLINOIS.

ALARM-LOCK.

SPECIFICATION forming part of Letters Patent No. 459,069, dated September 8, 1891.

Application filed February 19, 1891. Serial No. 382,029. (No model.)

To all whom it may concern:

Be it known that we, MICHEL MICHELS and JOSEPH PAULY, citizens of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to locks, and more particularly to a secret and alarm lock.

The object of the invention is to provide a lock of simple, inexpensive, and durable construction that requires a special knowledge of the manner of its operation to lock and unlock it, and one that will cause an alarm to be sounded in the locking and unlocking operations and when unauthorized persons attempt to operate it.

The invention consists in the details of construction and combinations of parts hereinafter fully described, and pointed out in the appended claims.

In the accompanying drawings, illustrating our invention, Figure 1 is a face view of the lock with the front plate removed and the bolt shot. Fig. 2 is a similar view with the bolt retracted, and Figs. 3 and 4 are vertical transverse sections illustrating in different positions the devices for securing the bolt when advanced.

Referring to said drawings, A indicates the lock-casing comprising front and rear plates a and a' and the rectangular frame a^2, having face-plate a^3.

B indicates, as a whole, a spring-latch of familiar construction.

C indicates a sliding bolt located in an aperture in the face-plate a^3 and provided with a shank C′, having a sliding connection with guides c c, secured to the rear plate a'. The said shank is provided with two shoulders c' c', which are located on either side of and engage with a transverse shaft D, (hereinafter referred to,) by means of which the extent of movement of said bolt and shank is limited.

A′ indicates the key-hole of the lock, and A^2 a key located therein. In Fig. 2 the bolt is shown retracted with the key ready to shoot the same, and in Fig. 1 the bolt is shown shot and the key in the position it will assume as soon as the bolt is advanced. For the purpose of shooting said bolt the shank is provided with a downwardly-projecting shoulder C^2, which is engaged and advanced by the bit of the key. Before shooting the bolt, however, the bit of the key lifts the tumbler E, that engages with a notch c^3 in the upper face of the shank. The said tumbler E is carried by a spring-arm E′, that serves to hold it in engagement with the notch c^3. The said spring-arm E′ is secured to a pin e upon the rear plate and is provided with a downwardly-projecting finger e', located in the path of the bit of the key. After the bolt is shot and the key is turned farther it allows the finger e' to descend under the influence of the spring-arm E′, whereby the tumbler E will engage with another notch C^4 in the shank C. The key can then be turned farther and removed. The parts of the lock will then be in the position shown in Fig. 1, except that the swinging detent C^2 will be in the position shown in dotted lines. If a person unacquainted with the working of the lock should try to unlock the same or retract the bolt, the key would undoubtedly be turned from left to right on top and would simply clear the shoulder C^2 of the shank, lift the finger e' of the spring-arm E′ and press back the detent C^2, which is held by a spring a^4, as shown in Fig. 1. In turning the key as above described, however, the bit engages the lower arm f of a lever F, pivoted to the front plate a. The other arm f' of this lever F engages a projection f^2 on the spring-arm F′ of the hammer f^3, so that as the bit of the key turns the lever F on its pivot the hammer is drawn back and is then thrown against the bell F^2. An alarm is thus sounded and shows that some one is attempting to retract the bolt. If the key is now turned in an opposite direction, it will pass by the detent C^2 and finger e' and will again engage the lower arm f of the lever and ring the bell again in an obvious manner. It will thus be seen that the key can be turned in either direction without moving the bolt. A spring f^4, secured to the face-plate, serves to limit the movement of the arm f' of the lever on one side of the projection f^2, while a spring g, secured to a post G, limits its movement on the other side.

The detent C^2 is pivoted to the shank near its rear end and is the means by which the bolt is retracted. Said detent is provided on its face end with a projection c^5. The detent is shown in dotted lines in Fig. 1 in the position it will assume when the bolt is shot. To retract the bolt, the key is turned in the same direction in which to shoot the bolt, but only to the position shown in Fig. 1. In turning the key into this position its bit will engage the detent and carry it to the position shown in full lines, whereupon the detent will fall down until the projection c^5 engages with the said bit, as shown in Fig. 1. The said bit also lifts the finger e' and removes the tumbler from notch c^4, so that by turning the key back the bolt will be retracted. The bit will engage the detent until the bolt is retracted, as shown in Fig. 2, said bit and detent being shown in dotted lines. When the key is turned farther, the detent is released and is thrown against the bell F^2 by the spring a^4, against which it is retracted, as shown in dotted lines in Fig. 2. The detent thus sounds an alarm and then falls back to the position shown in full lines in Fig. 2. Devices are also provided by means of which the bolt can be locked when it is shot, so that it cannot be retracted even by the key, and comprise, broadly, a locking-pin G′, that engages with an opening or recess c^6 in the shank C′ when the bolt is shot. The said locking-pin G′ slides back and forth through an opening g' in the post G, and is located to engage said opening or recess c^6 in the shank when the bolt is shot. The rear end of said locking-pin projects through the post G and is acted upon by a spring g^2, which serves to press its other end into said recess or opening. The shaft D is supported in bearings in the front and rear plates and the post G, and carries a cam d, engaging with a finger or projection g^3 in the locking-pin, so that by turning the shaft D the locking-pin can be retracted or allowed to enter the opening c^6, as shown in Figs. 3 and 4.

G^2 indicates a spring-arm carrying a hammer g^4. This said spring-arm G^2 is acted upon by a wiper-wheel d', mounted upon the shaft D, so that as said shaft is turned the wiper-wheel alternately retracts and allows the hammer to strike the bell F^2. By this construction an alarm will also be given when the shaft D is turned to retract the locking-pin G′, so that an unauthorized person would be detected when interfering with the lock.

We claim as our invention—

1. A lock having an alarm mechanism comprising a bell, a hammer carried by a spring-arm, a projection located on said spring-arm between its ends, and a pivoted lever having one arm located to engage said projection and the other arm located in the path of the bit of the key, that when the bit turns said lever on its pivot said lever will engage the projection on the spring-arm and push back said spring-arm and then allow it to spring forward and throw the hammer against the bell.

2. A lock having an alarm mechanism comprising a bell, a hammer carried by a spring-arm, a projection on said arm, a pivoted lever having one arm located to engage said projection and the other arm located in the path of the bit of the key, and springs g^4 and f^4, engaging said lever and serving to hold it in engagement with the said projection.

3. A lock comprising a bolt, a detent pivoted thereto and located in the path of the bit of the key, and a spring acting upon said detent and serving to throw it against a bell or similar alarm mechanism.

4. A lock comprising a bolt, a locking-pin, a shaft having a cam engaging and operating said pin, a wiper-wheel on said shaft, and a spring-arm located in engagement with said wiper-wheel, said spring-arm carrying a hammer which sounds an alarm.

5. A lock comprising a bolt having a shank provided with shoulders c', a locking-pin for holding said bolt immovable, a shaft for operating said locking-pin, said shaft being mounted in bearings on the lock-casing and located between said shoulders on the shank to limit the movement of said bolt in being retracted and being shot.

6. A lock comprising a bolt, a post G, located adjacent thereto, a locking-pin upon said post, a spring g^2, engaging said locking-pin, a lug upon said locking-pin, and a cam engaging said lug and carried by a shaft located in bearings on the lock-casing.

In testimony whereof we affix our signatures in presence of two witnesses.

MICHEL MICHELS.
JOSEPH PAULY.

Witnesses:
WM. H. LOTZ,
HARRY COBB KENNEDY.