(No Model.)

T. B. HORNADAY.

ELECTRIC LOCK.

No. 368,212. Patented Aug. 16, 1887.

Fig. 1.

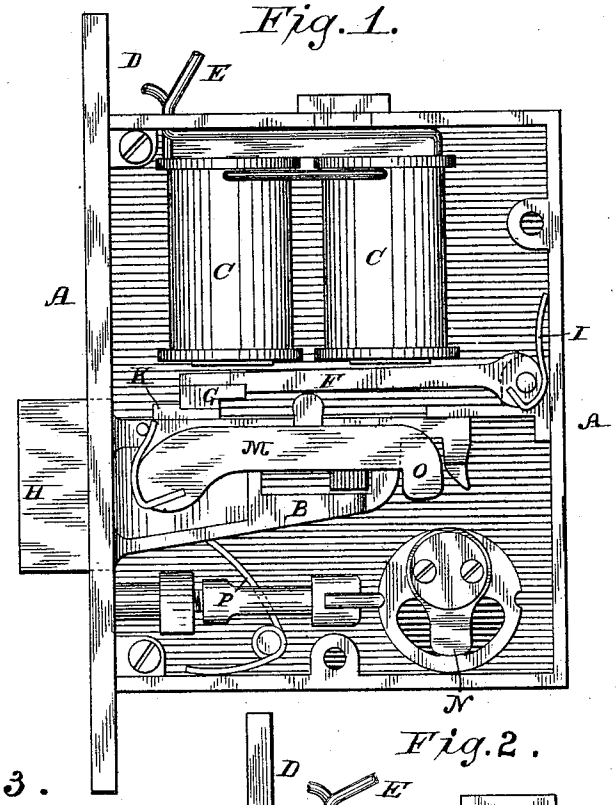


Fig. 2.

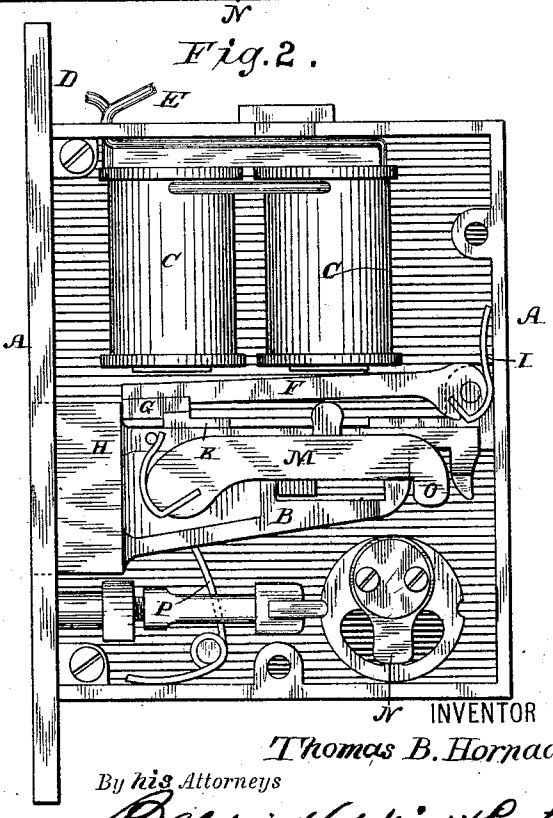
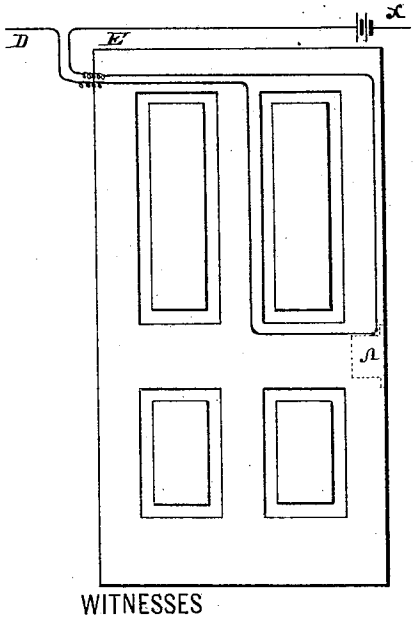


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS B. HORNADAY, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE YALE & TOWNE MANUFACTURING COMPANY, OF STAMFORD, CONNECTICUT.

ELECTRIC LOCK.

SPECIFICATION forming part of Letters Patent No. 368,212, dated August 16, 1887.

Application filed March 29, 1887. Serial No. 232,832. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. HORNADAY, of Indianapolis, in the county of Marion and State of Indiana, have invented a certain new and useful Improvement in Locks, of which the following is a specification.

The object of my invention is to provide an improved lock which can be operated either by a key or by electricity at will.

My improved lock is designed, principally, for use in insane-asylums and other institutions where the inmates are ordinarily locked in their rooms, and where on the occurrence of fire or other sudden emergency it is essential to unlock all the doors at once, which, it is well known, can be done by including the locks in an electric circuit.

My improvements in locks having the capacity to be locked or unlocked by keys and to be unlocked by electricity consist in the organizations of parts hereinafter described, and succinctly summed up in my appended claims.

In the accompanying drawings, Figure 1 is a view of a lock embodying my improvements, with the cap-plate removed, and showing the bolt in the locked position. Fig. 2 is a similar view showing the bolt in the unlocked position. Fig. 3 shows a battery and part of a circuit and a lock on a door.

Referring to the letters upon the drawings to aid in describing them in detail, A indicates a lock-case containing an ordinary locking mechanism, B, such, for example, as manufactured by The Yale & Towne Manufacturing Company, of Stamford, Connecticut, which I need not describe in detail, and also an electro-magnet, C, of usual form, which may be in an electric circuit by means of conductors D and E and a battery indicated at *x*. F is the pivoted armature of the magnet, provided with a dog, G, adapted to hold the lock-bolt H in both the locked and unlocked positions. By force of a spring, I, the armature tends to tilt downward or toward the lock-bolt, which is provided with a lug or projection, K, so adjusted that when the lock-bolt is in the locked position, as indicated in Fig. 1, the dog will fall behind the lug and dog the bolt in that position. When the bolt is in the unlocked position, as indicated in Fig. 2, the spring-armature will force the dog down in front of the lug and hold the bolt in the unlocked position. The electro-magnet is preferably arranged, as shown, to work with a normally-open circuit, so as to attract the armature in the usual manner, overcome the force of spring I, and lift the dog H out of position to dog the bolt, as indicated. Thus it will be seen that ordinarily, when the electro-magnet is not in operation to attract the armature, the bolt will be dogged either in the locked or unlocked position, so that a key intended to operate in the usual manner upon the bolt to throw it back and forth would not work without mechanical means for raising the armature and undogging the bolt.

In order to provide for operating the bolt by means of a key when the bolt is dogged in this manner by a spring-armature, I provide a pivoted spring-actuated lever or lifter, M, so adjusted and constructed that its free end will be in the path of the cam N for throwing the bolt by means of a key. This lever is also so adjusted and shaped (or it may be provided with a lug or projection, O) that when the cam N strikes it it will be lifted up and will raise the armature and release the dog from the bolt just before the cam begins to bear upon and throw the bolt. By this construction I am able to operate the bolt precisely as if there were no dogging mechanism at all affecting it, or as if only the ordinary dogging mechanism of such locks as illustrated were present.

In order that the lock-bolt may operate automatically, or that a large number of lock-bolts may be operated automatically to unlock when electricity is employed to attract the armature and release the dog, it is necessary that a spring, P, or equivalent, be employed of sufficient strength to throw the bolt into the unlocked position whenever it is not dogged in the locked position. Then, in order to operate the lock, or a series of locks, simultaneously it will only be necessary to open or close the circuit, as the case may be, in the usual way, by touching a button, when the armature will be lifted and the dog re-

leased and the spring-bolt automatically retracted.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent of the United States, is—

1. The combination, substantially as set forth, of the electro-magnet, its pivoted armature, the dog on the end of the armature, the sliding bolt, the lug on the bolt, which engages with the inner end of the dog when the bolt is drawn in, and which engages with the outer end of the dog when the bolt is shot out, and a spring connected with the armature for holding the dog in engagement with the lug.

2. The combination, substantially as set forth, of the electro-magnet, its armature, the bolt, the dog on the end of the armature, which engages with a lug on the bolt in either its locked or unlocked position, the cam operated by the key, and a lever interposed between the cam and the armature, which raises the armature when raised by the cam.

3. The combination of an electro-magnet, C, its spring-armature F, carrying a dog, G, a lock-bolt, H, having a lug or tooth, K, with which the dog G engages, a pivoted lever, M, for raising or disengaging the armature from the bolt, and a cam, N, operated by a key for lifting the lever M and for throwing the bolt, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

THOMAS B. HORNADAY.

Witnesses:
WM. BOAZ,
CHESTER ALLEN.