(No Model.)

F. SEDGWICK.

ELECTRIC LOCK AND BOLT MOVING MECHANISM.

No. 347,070. Patented Aug. 10, 1886.

Fig. 1.

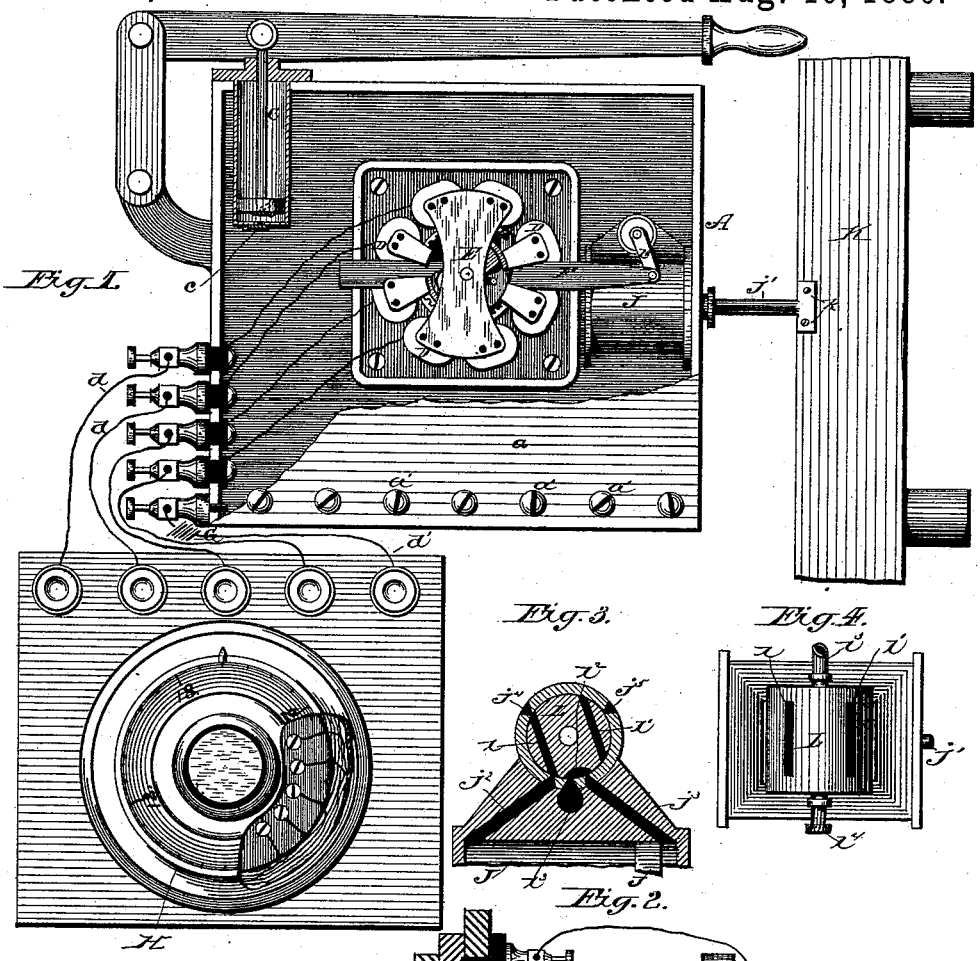
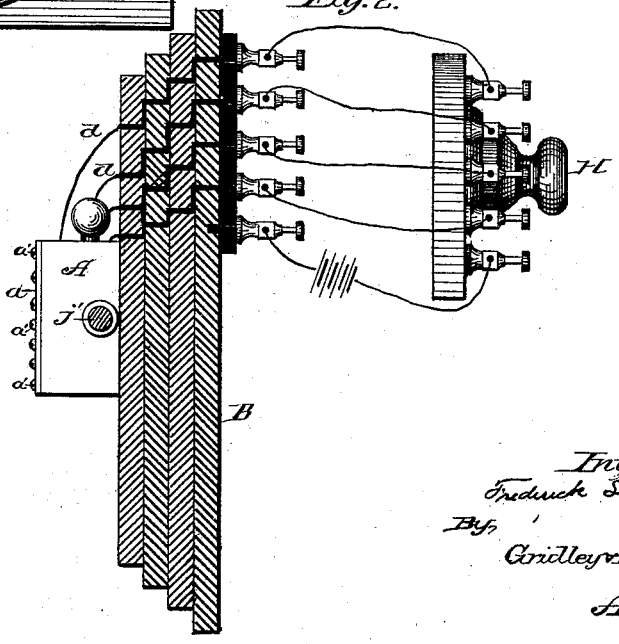


Fig. 3.

Fig. 4.

Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDERICK SEDGWICK, OF CHICAGO, ILLINOIS.

ELECTRIC LOCK AND BOLT-MOVING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 347,070, dated August 10, 1886.

Application filed March 10, 1885. Serial No. 158,309. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK SEDGWICK, of Chicago, Illinois, have invented a certain new, useful, and Improved Electric Lock and Bolt-Moving Mechanism, of which the following is a description, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of an air-receiving chamber with a portion of the front plate broken away to show a lock and other mechanism therein, while a front view of a dial connected therewith for operating the same is likewise shown. Fig. 2 is a vertical sectional view of a safe-door to which said mechanism is attached, together with a side view of the connected dial. Fig. 3 is a vertical sectional view in detail, showing the construction of the valve; and Fig. 4 is a plan view of said valve.

Like letters of reference indicate like parts in the different figures.

The purpose of my invention is to produce a lock and bolt-moving mechanism for safes and vaults which may be operated from without the safe by electrical means, thereby obviating the necessity for the usual direct mechanical connections with said lock or bolt-work for manipulating the same, which device is hereinafter more particularly described and claimed.

In the drawings, A represents an air-tight compartment or case, which may be removably attached, by means of bolts or screws or otherwise, to the safe-door B. Said compartment is provided with a removable face-plate, *a*, attached thereto by means of screws *a'*, the connecting-joint thereof being hermetically sealed. Connected with said compartment, as clearly shown in the drawings, is an air-pump, C, Fig. 1, constructed substantially as shown, or in any well-known manner, and having a valve, *c*, in the bottom of its cylinder, so that upon operating said pump air may be forced or compressed within the chamber A, from which the same can only be released in the manner hereinafter set forth. Within said chamber A and attached to the case thereof, as shown, I place an electro-magnetic permutation-lock consisting of a series of electro-magnets, D, arranged concentrically to a revolving armature, E, connected by suitable gears and other mechanism with a series of tumblers and a lock-bolt, F. Said magnets D are connected by means of wires *d d d d* and circuit-wires *d'*, as clearly shown in the drawings, with a suitable battery-cup, G, and a dial or circuit-breaking mechanism, H, outside of the safe, whereby and from whence said magnets may be excited in regular consecutive order, the tumblers manipulated, and the bolt F thrown or retracted at will, all of which mechanism is fully and accurately described in an application for Letters Patent filed by me in the Patent Office on the 20th day of August, A. D. 1884, and to which I herein make no claim. Within said compartment A, I likewise place a cylinder, J, having a suitable piston, *j*, Fig. 3, the rod *j'* of which passes through the case A, and is rigidly connected to the bolt-bar K by rivets or bolts *k*, Fig. 1. Said cylinder is provided with induction-ports j^2 j^3, Fig. 3, communicating with the compartment A, which are opened and closed by means of a two-way cock or valve, L, having ports *l l'* so placed that a partial revolution of said valve serves to open one port while the other is closed, said ports *l l'* communicating with openings j^4 j^5, Fig. 3, in the outer shell. A notch, l^2, in the plug of said valve, serves to alternately connect said ports with an exhaust-pipe, l^3, leading to the outside of the case A. Rigidly connected with said valve L is a crank, l^4, which is loosely or pivotally attached to the reciprocating bar F, so that the movement of the latter back and forth may partially rotate said valve L and open one and close the other of said ports, respectively, thus permitting the compressed air within the case A to flow into said cylinder behind or in front of the piston *j*, and by the movement of the latter throw or retract the bolt-bar, as desired. Said mechanism may be operated as follows: A volume of air is compressed within the compartment A by means of the pump C, after which the door B is closed and the dial H rotated, thereby actuating the bar F, and with it the crank l^4, which opens the port j^2, thus allowing a portion of the compressed air within the compartment A to enter behind the piston *j* and force the same forward, resulting in the movement of the bolt-bar K and the locking of the safe. Upon manipulating the combination by means of the dial H the bar F is

retracted, which reverses the movement of the valve L, thus permitting the escape through the duct l^3 of the compressed air behind the piston j, and allowing an influx in front thereof through the port j^3, which retracts the bolt-work and enables the safe to be again opened.

Having described my invention, I claim as new—

1. An electric lock and bolt-moving mechanism consisting of an electro-magnetic permutation-lock arranged within the safe and having electrical connections with a circuit-breaking mechanism outside thereof and a battery-cup, an air-chamber with means for compressing air therein and communicating by a suitable valve with a cylinder the piston of which is connected with the bolt-work, and means for connecting said valve with the lock-bolt, whereby the movement of said bolt may permit an influx of air to said cylinder to throw or retract said bolt-work, substantially as described.

2. The combination, with an electro-magnetic permutation-lock, substantially as described, of an air-chamber arranged within the safe, and means for compressing air therein, a cylinder having a piston connected with said bolt-work and a valve-connection with said chamber, and means for connecting said valve with said lock-bolt, substantially as and for the purposes set forth.

3. A bolt-moving mechanism for safes, consisting of an air-chamber arranged within the safe, means for compressing air therein, a cylinder having a piston connected with the safe bolt-work, together with a valve-connection with said chamber, in combination with an electro-magnetic permutation-lock placed within said chamber, and having its bolt connected with said cylinder-valve, substantially as and for the purposes specified.

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