

(No Model.)

J. R. DONNELLY.
ELECTRIC LOCK.

No. 516,478.

Patented Mar. 13, 1894.

Fig. 1.

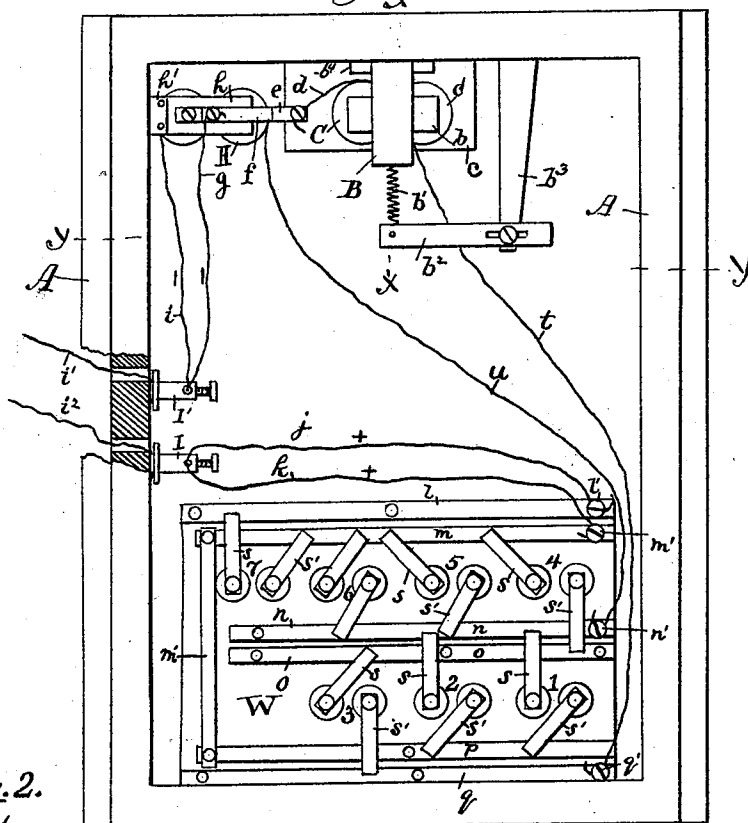


Fig. 2.

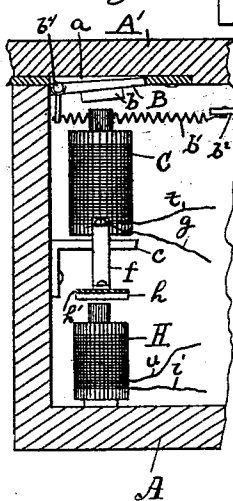


Fig. 3.

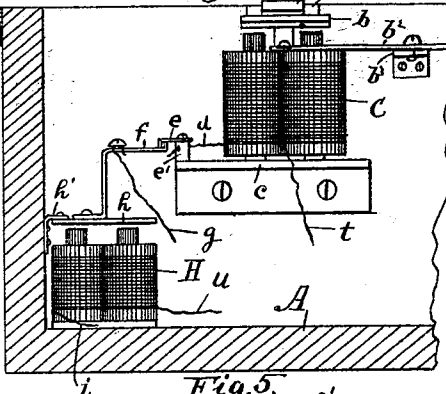


Fig. 4.

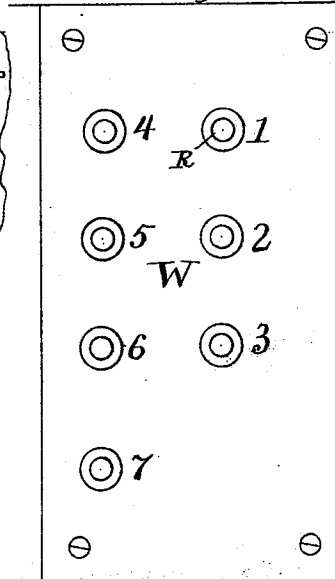
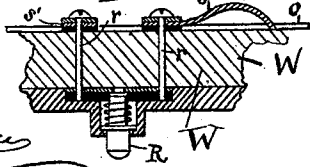


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN R. DONNELLY, OF FAIRFIELD, MAINE.

ELECTRIC LOCK.

SPECIFICATION forming part of Letters Patent No. 516,478, dated March 13, 1894.

Application filed March 30, 1893. Serial No. 468,276. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. DONNELLY, a citizen of the United States, residing at Fairfield, in the county of Somerset and State of Maine, have invented an Improvement in Combination Money-Drawers, of which the following is a specification.

My invention relates to a money till or drawer of the class known as combination money drawers. These drawers are securely locked and are usually opened by means of a combination of levers which release the lock when the proper levers are acted on by the fingers. In my device I make use of electricity for releasing the locking lever which is controlled by an electro magnet and I open the drawer by a novel combination key board by which the magnet is charged and the locking lever released. A circuit breaker is placed in the main circuit connected with the keyboard by means of an independent circuit. Push buttons are provided outside the drawer and connected with the keyboard which is so arranged that when the proper combination of buttons is pushed in the main circuit is completed and the drawer unlocked but if any other button is pressed the independent circuit is closed and the circuit breaker operated, thus breaking the main circuit and rendering the unlocking device inoperative.

I illustrate my invention in the accompanying drawings which represents a money till fitted up according to my invention.

Figure 1 is a plan or top view of the drawer which may be of any ordinary construction. Fig. 2 is a part section on xx of Fig. 1. Fig. 3 is a section on yy of Fig. 1. Fig. 4 is a view of the under side of the drawer showing the push buttons. Fig. 5 is a section showing the manner of connecting the push buttons with the top of the key board, the arm at the top being swung around out of position to show its construction.

A A represent the till or drawer mounted on the under side of the counter A' (Fig. 2) in the usual way. It is secured by means of a lock or catch B which enters a recess a in the under side of the counter when the drawer is pushed in. The locking lever B is pivoted by means of a hinge b^4 and it is kept pressed normally upward into the recess a by means of

a spiral spring b' secured to the end of an adjustable lever b^2 said lever being secured to the end of a standard b^3 . The locking lever B is depressed and released by the action of an electro-magnet C supported on a bracket c and the armature b of the magnet is secured to the locking lever. When the current passes through the magnet C the locking lever is drawn down by the action of the magnet. The coils of the electro-magnet C are in circuit with a suitable battery not shown which may be at a distance from the drawer.

l represents a binding post connected with the positive wire i^2 of the battery and l' is a binding post connected with the negative wire i' .

t is one of the main wires connecting with the magnet C and d is the other. A circuit breaker is located at some point in the main circuit. As here shown it is located between the wire d and the binding post l' . The wire d connects with a binding post e' to the top of which is secured an arm e . An arm f which is secured to the armature h of the electro-magnet H is normally in contact with the arm e but when the armature h is depressed by the action of the electro-magnet, the arms f and e separate. The main circuit passes through the arms e and f and thence by the wire g to the binding post l' so that when the arms f and e separate the main circuit is broken. A spring h' keeps the armature h and the arm f normally pressed upward and secures contact with the arm e .

u and i are the wires of an independent circuit which passes through the electro-magnet H of the circuit breaker. The wire i connects directly with the binding post l' and the wire u connects with the keyboard W as hereinafter shown. The keyboard has as I prefer to construct it, five bars or poles and one connecting bar arranged on the top of the key board parallel with each other. The two outside bars l and q are connected respectively with the positive wire j from the battery by means of a binding screw I and the negative wire t which runs to the electro-magnet C the latter connection being made by a binding screw q' . These two poles are thus in the main circuit. The poles or bars m and n are arranged between the poles l and q and they are in the independent cir-

cuit which operates the circuit breaker. The pole *m* is adjacent to the pole *l* and connects with the positive pole of the battery by means of the wire *k* held by the binding screw *m'*.

5 The pole *n* is, as here shown, about equally distant between the main poles *l* and *q* and it connects with the wire *u* which runs to the circuit breaker, the said wire being secured by a binding screw *n'*. A pole *p* placed adjacent to the pole *q* is connected by one end with the pole *m* by means of a strip *m'* and forms a continuation of the pole *m*. Adjacent to the pole *n* is a connecting bar *o* the purpose of which will be fully pointed out.

15 A series of push buttons *R* are provided on the outside of the drawer for the purpose of completing the main circuit and opening the drawer. In the present instance I make use of seven buttons numbered from 1 up to 7 and arranged in two rows equidistant between the bars *m* and *n*, and *o* and *p*. The position of the buttons is indicated by figures on top of the key board in Fig. 1. The push buttons are of well-known construction and need not be described in detail. In place of the usual wires I make use of two rods *r* which connect with the poles of the push button and extend up through to the top side of the key board when they form pivots to which are connected the arms *s* and *s'*. These arms are of metal or other good conducting material and are pivoted at their ends as stated by the pivots *r*. As here shown they are bowed upward so that their free ends can be swung around and placed in any desired position. They are of such length that they can be swung around to connect with the two adjacent bars on each side. The combination is set by means of these arms and their position on the bars or poles.

40 In order to illustrate the operation of my invention I have arranged the arms on the combination 7, 4, 3. The arm 7 *s* is placed on the main positive pole *l* and 7 *s'* on the positive pole *m* of the independent circuit. The arm 4 *s* is placed on *m* and 4 *s'* on the connecting bar *o*. The arm 3 *s* is connected with *o* and 3 *s'* with the main negative pole *q*. Now if the three buttons of the combination are all closed at the same time the main circuit is complete and the magnet *C* withdraws the locking lever *B* and enables the drawer to be opened. The current passes through wire *j* to the pole *l*, arm 7 *s*, thence through the button and arm 7 *s'* to the pole *m*, arm 4 *s*, arm 4 *s'* to connecting bar *o*, thence along the bar *o* to arm 3 *s*, arm 3 *s'* to pole *q*. From here it passes over the wire *t* to the magnet *C* and thence to the wire *d* through the circuit breaker as already described to the negative pole of the battery. The arms of all the other push buttons except those in the combination are connected with the positive and negative poles *m*, *n*, and *p* of the independent circuit one arm of each being connected with the positive and the other with the negative pole. If any one of these buttons is pressed the cur-

rent passes at once through the positive pole *m*, thence through the push button to the negative pole *n*, thence over the wire *u* to the magnet *H* and through the wire *i* to the negative pole of the battery. The circuit breaker is thus brought into operation and the main current cannot be completed so long as this button is pressed. Thus it will be seen that each button of the combination must be pressed but no other button can be touched if the drawer is to be opened. It will be seen that many combinations may be made in a similar manner to that shown although the key board here shown is not adapted to form every combination which the figures are capable of making.

It will be understood that other forms of key board may be devised and used in a money drawer without departing from the spirit of my invention and I do not wish to limit myself to the use of this particular key board.

I claim—

1. The herein described money drawer having a locking lever, an electro-magnet for controlling said locking lever, an electric circuit including said magnet, a key board in said circuit having push buttons for closing the circuit and a circuit breaker in said circuit, an independent circuit connected with the electro-magnet of said circuit breaker and push buttons in said key board each of which is arranged to close said independent circuit and so break the main circuit, substantially as described.

2. The herein described money till having a locking lever, an electro-magnet for controlling said locking lever, a main circuit including said electro-magnet, a key board having two bars or poles *l* and *q* one of which is connected with the positive and the other to the negative wire of said circuit, a connecting bar between said positive and negative poles, a series of push buttons between said positive pole and the connecting bar and between said negative pole and the connecting bar, arms connecting with the positive and negative poles of said push buttons and adapted to be placed at will in electrical contact with said poles and said connecting bar, substantially as described.

3. The herein described money till having a locking lever, an electro-magnet for controlling said locking lever, a main circuit including said electro-magnet, a key board having two bars or poles *l* and *q* one of which is connected with the positive and the other to the negative wire of said circuit, a connecting bar between said positive and negative poles, a series of push buttons between said positive pole and the connecting bar, and between said negative pole and the connecting bar, pivoted arms connected with the positive and negative poles of said push buttons and adapted to be swung at will into contact with said poles and said connecting bar, substantially as described.

4. The herein described money till having

a locking lever, an electro-magnet for controlling said locking lever, a main circuit including said electro-magnet, a key board having two bars or poles *l* and *q* one of which is
 5 connected with the positive and the other to the negative wire of said circuit, a connecting bar between said positive and negative poles, a circuit breaker in said circuit and an independent circuit connected therewith, two
 10 poles *m* and *n* between the poles *l* and *q*, one of which is connected with the positive and the other with the negative wire of the said independent circuit, a row of push buttons between the poles *m* and *n* and a row between
 15 the bars *o* and *q* and arms connected with the positive and negative wires of said push buttons adapted to be placed at will in connection with the adjacent poles and connecting bar, substantially as described.
 20 5. The herein described money till having a locking lever, an electro-magnet for controlling said locking lever, a main circuit including said electro-magnet, a key board having two bars or poles *l* and *q* one of which is
 25 connected with the positive and the other to the negative wire of said circuit, a connecting bar between said positive and negative poles, a circuit breaker in said circuit and an in-

dependent circuit connected therewith, two poles *m* and *n* between the poles *l* and *q* one
 30 of which is connected with the positive and the other with the negative wire of the said independent circuit, a pole *p* adjacent to the pole *q* and connected with the pole *m* by the strip *m'* at the end of the switch-board, a row
 35 of push buttons between the poles *m* and *n* and a row between the bars *o* and *p* and arms connected with the positive and negative wires of said push buttons adapted to be placed at will in connection with the adjacent
 40 poles and connecting bar, substantially as described.

6. A combination key board having bars or poles connected with the wires of an electric
 45 circuit and push buttons the poles of which are connected with movable arms adapted to be connected at will with said bars, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two
 50 witnesses.

JOHN R. DONNELLY.

Witnesses:

F. E. MCFADDEN,
 E. W. MCFADDEN.