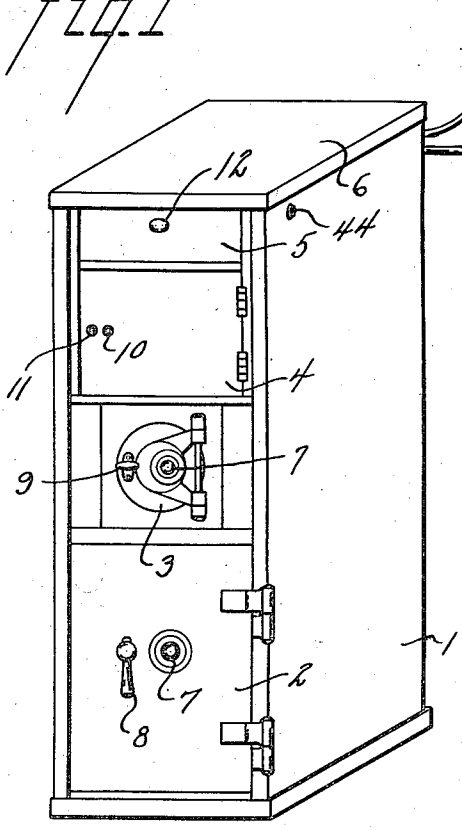
Dec. 22, 1936. C. F. MEILINK 2,065,142

LOCKING MECHANISM

Filed July 19, 1933 2 Sheets-Sheet 1

Fig. 1



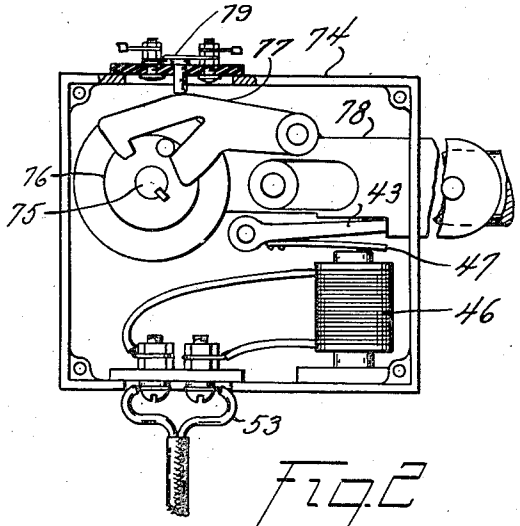
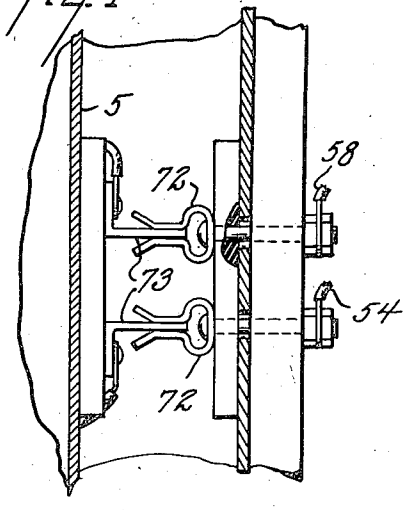


Fig. 2

Fig. 4



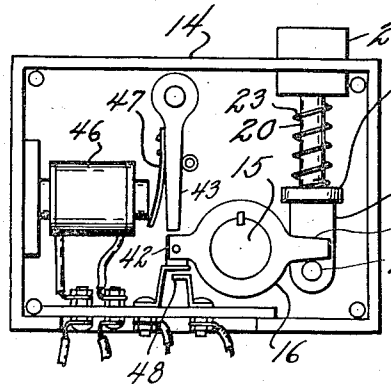


Fig. 3

Inventor

Charles F. Meilink

By

Attorney

Dec. 22, 1936. C. F. MEILINK 2,065,142

LOCKING MECHANISM

Filed July 19, 1933 2 Sheets-Sheet 2

Fig. 5

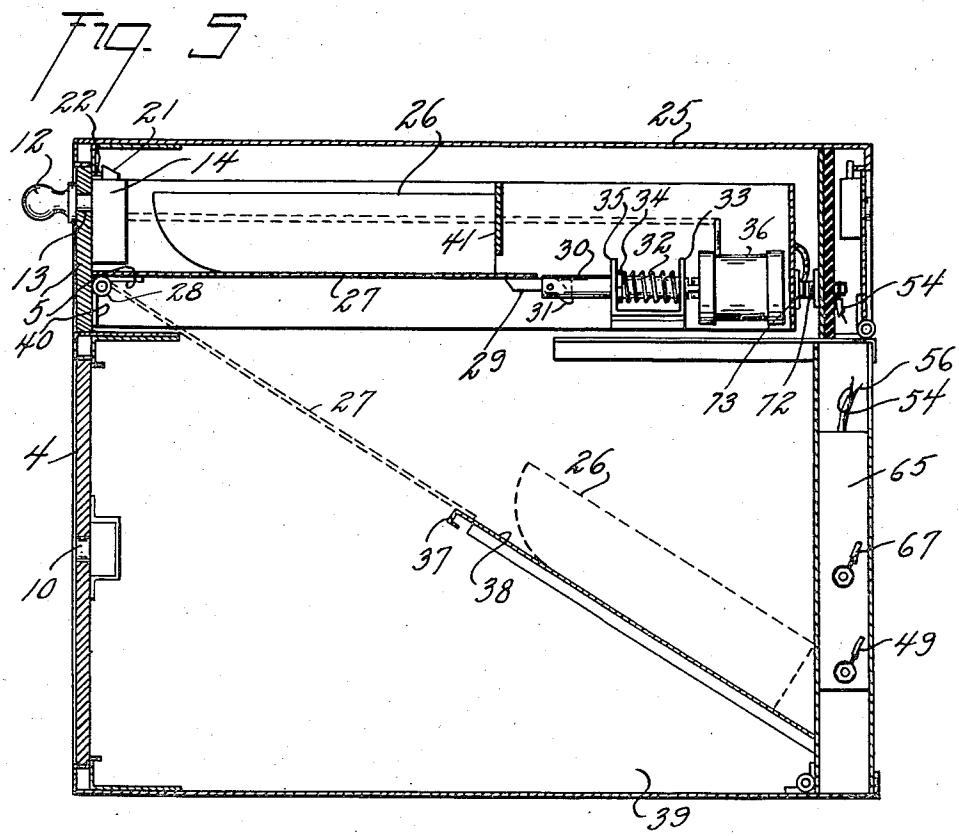


Fig. 6

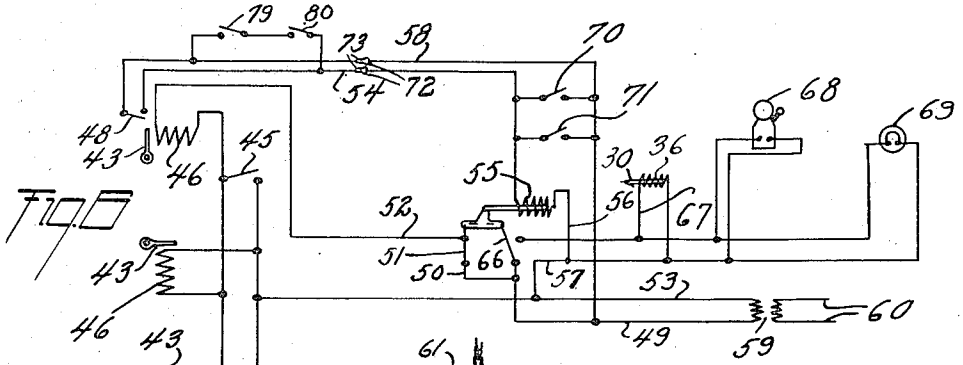
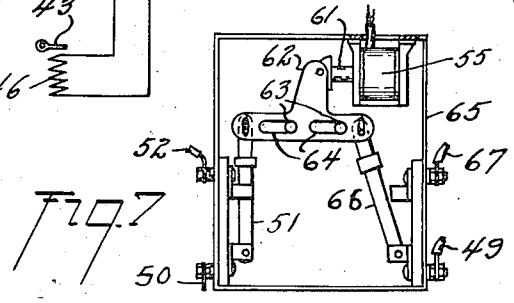


Fig. 7



Inventor

Charles F. Meilink

Attorney

Patented Dec. 22, 1936 2,065,142

UNITED STATES PATENT OFFICE

2,065,142

LOCKING MECHANISM

Charles F. Meilink, Toledo, Ohio

Application July 19, 1933, Serial No. 681,146

5 Claims. (Cl. 70—50)

This invention relates to locking features.

This invention has utility when incorporated in security and cash repositories or receptacles, and is applicable to cash drawers, cabinets, safes, and strong boxes.

Referring to the drawings:

Fig. 1 is a perspective view of an embodiment of the invention in a safety cabinet;

Fig. 2 is a detail view, with the cover removed, of a tumbler lock having features of the invention incorporated therewith;

Fig. 3 is a view similar to Fig. 2 of a lock as adapted to the drawer of Fig. 1;

Fig. 4 is a fragmentary detail view of the control connections to the drawer;

Fig. 5 is a vertical section through the drawer and repository therebelow;

Fig. 6 is a wiring diagram; and

Fig. 7 is a detail view of the control switch for the electrical features hereunder.

Cabinet 1 is shown with door 2 for entrance to a fireproof, safety compartment, door 3 to a money safe, door 4 to a repository, and drawer 5 as a cash or current-use receptacle below deck 6 which may be a platform or table upon which to locate a printing device, say of the cash register type. Spindle 7 may operate combination lock for the compartment 2 so that bolts may be released and handle 8 operated for withdrawing the bolts and opening the door 2. Spindle 7 in the door 3 may likewise operate on tumblers to release bolts so that this door 3 may be opened by operating handle 9.

Door 4 is shown as having key lock 10 which may be, say within the control of the attendant at the store or station, and key lock 11, which may be operable, say by the traveling auditor, thus to gain access to the repository.

The drawer 5 is shown provided with handle 12 in bearing 13 of the drawer front, on the inner side of which is mounted lock box 14. This handle 12 has fixed therewith stem 15 upon which in the box 14 is mounted collar 16 (Fig. 3) having arm 17 operable against pin 18 fixed with enlargement 19 of bolt 20, having head 21 protruding from the box 14 (Fig. 5) to engage stop 22, as this locking bolt or latch is normally maintained in outwardly thrust position by compression helical spring 23 acting between guide 24 fixed with the box 14 and the head 21. It is thus seen that in rotating the shaft 15 (Fig. 3) in clockwise direction, the arm 17 engages the pin 18 for retracting the bolt so that the head 21 is clear of the stop 22, and the drawer 5 may be pulled outwardly from the case or cabinet 1. These receptacles may be assembled as shown in the case 1 or there may be individual units.

Case 25 (Fig. 5) shows the drawer and repository as a unit. Drawer 5 is herein shown including cash tray 26 on ledge 27 having hinge 28 at the drawer front. This ledge 27 is normally retained in horizontal position to support the tray 26 in the drawer by dog 29, pivotally carried by stem 30. This dog 29 has swing-limiting extension 31 which allows the dog to swing upward but not to swing downward. This stem 30 is normally held in position to have the dog 29 sustain the ledge 27 by spring 32 about this stem 30 and acting against ledge 33 to thrust collar 34 on this stem 30 toward guide 35.

This stem 30 extends past this yoke carrying the guides 33, 35, into coil 36 as a solenoid which, when energized, retracts the stem 30 so that the dog 29 is clear of the ledge 27 and the tray 26 may swing downward on the hinge 28 for the free end of this ledge 27 to strike upper terminus 37 of incline 38 in chamber 39 having the door 4. Thus the tray 26 is shifted clear of the drawer 5 and when the ledge 27 is clear of the weight of this tray 26, leaf spring 40 adjacent the hinge 28, is of sufficient strength to return this ledge 27, and it may swing past the dog 29 against partition 41 in the drawer 5, thereby shutting off access to the repository chamber 39.

In the box 14 this collar 16 has, besides the arm 17, a diametrically disposed arm 42. The operation of the shaft 15, clockwise direction in Fig. 3, to withdraw the bolt is not effective with dog 43 to intercept the arm 42. To permit this normal operation for opening the drawer 5, the authorized attendant may press push button 44, thereby closing switch 45, energizing coil 46 to draw the dog 43 as an armature against the resistance of spring 47, thus clearing this dog 43 of the arm 42. In the event the attendant or one unauthorized should attempt to open the drawer 5, say by attempting to rotate the shaft 15 counterclockwise in Fig. 3, the arm 42 acts to close switch 48. At the closing of the switch 45, supply current from the line 49, 50, switch 51 and line 52, comes to one side of the coil 46; while line 53 extends to the switch 45, to the opposite side of the coil 46. This is a primary, normal, authorized, safe control circuit.

Alternatively thereto, there is the independent emergency or unauthorized circuit operated by the switch 48 effective through line 54 to energize coil 55 as connected by line 56 to line 57 to the supply line 53. The opposite side of the switch 48 is connected by line 58 to the line 49.

These lines 49, 53, may be of low voltage, say as passing transformer 59 from supply lines 60. The closing of the switch 48 and energizing of the coil 55 operates on stem 61 connected to yoke 62 guided on pins 63, working in slots 64 to shift this yoke 62 in box 65 and open the switch 51, while simultaneously closing switch 66. This closing of the switch 66 connects the line 49 to line 67 extending to energize the coil 36 for tripping in the drawer 5 to dump the tray 26 into the chamber 39. Simultaneously, there may be setting off of alarm as at bell 68 and visible signal 69.

This emergency condition, besides being brought about by one fumbling the operation at the handle for the drawer 5, also may be given identical attention by a watchman or other attendants at remote positions, say at switches 70, 71, which may be variously located at strategic points in the station, store, bank, office or other establishment. This box 65 may be located in the cabinet 1, in the cabinet 25 or elsewhere about the establishment. A feature herein is the protection of the closed receptacle whether it be drawer or other repository herein. At the throwing of the emergency, the electrical release or normal operation circuits are dead. It thus follows, due to this dual circuit feature, there is defeat of access to the various chambers upon discontinuance of circuit, say by cutting the line; that current is required for normal operation; and that an independent circuit may be effective for such series of alarms as may be in order, even to A. D. T., telegraphic, or police headquarters.

The lines 54, 58, as in the circuit to the drawer 5 (Fig. 4) extend to terminals 72, which in closed position of the drawer, may coact with complementary terminals 73 for completing the circuit for the switch 48 in the lock box 14.

Lock box 74 for shaft 75 of the spindle 7 is shown as having tumblers 76 with which cooperate dog 77 pivotally mounted on bolt 78 movable in and out of the box 74 (Fig. 2). Normal withdrawal of this bolt 78 is intercepted by the dog 43 as an armature normally held in engaging position by the spring 47. Energizing of the coil 46 may effect withdrawal of this dog 43 to permit withdrawal of the bolt 78 from locked to unlocked position.

It is thus seen that the lock box hereunder is self-contained as to an electrical release for normal operation and that such release may be remotely controlled as by the push button 44; while emergency operation as by remote switches 70, 71, may effect de-energizing of this normal release circuit and at the same time effecting energizing of an alarm circuit for the police station or audible or visible signal in the adjacent premises.

The electrical inter-connection as herein shown is for units assembled, and as indicated, may be for separate units only, as even for the drawer without the drop or for the units as distributed in separate or in common interconnection. In the operation of the tumbler lock, the control of the bolt release is not by withdrawing the armature 43 from the holding position as to the bolt 78 but is given attention as the throwing of the tumblers 76 is completed for engagement of the dog 77 therewith.

An additional feature in practice may be switch 79 normally held open by the pawl 77 being out of engaging position with the tumbler 76. It thus follows that at once the pawl 77 is in position to drop into the tumbler 76, the switch 79 is closed, thereby precluding energizing of the coil 46 to have the armature 43 release the bolt 78, for the switch 51 is open and the switch 66 closed, due to energizing of the solenoid 55 which may thus simultaneously set off the alarm or alarms. In order that this operation of the switch 79 may not be one to interfere with the authorized operation of the lock in the box 74, switch 80 may be open at those times when there is to be authorized operation of the lock. Thus the switch 80 may be operated as the switch 70 or 71, or at the time when the attendant is away or wishes the supplemental safeguard.

What is claimed and it is desired to secure by Letters Patent is:

1. The combination of a lock including a spindle, a reciprocable bolt, and a pawl for connecting the bolt to be operated by the spindle, a switch operable on shifting of the pawl into connecting position between the bolt and spindle, a circuit for the switch, an electro-magnet in said circuit, holding means normally preventing retraction of the bolt by the spindle, and a release for said holding means, said release rendered inoperative by said circuit.

2. The combination of a lock including a spindle, a reciprocable bolt, and a pawl for connecting the bolt to be operated by the spindle, a switch operable by said pawl upon shifting the pawl into connectable position between the bolt and spindle, a circuit for said switch and means operable by said circuit to defeat normal operation of the lock.

3. A lock embodying a bolt, means for reciprocating the bolt, a movable member, a catch for holding the member against movement, an electro-magnet for withdrawing the catch from the member, and an electric circuit for the electro-magnet including a first switch operable by the retracting means independently of withdrawing the bolt, and a second switch operable by said circuit upon closure of the first switch to render said circuit inoperable.

4. A lock embodying a bolt, an operator for engaging the bolt to effect bolt withdrawal from locking position, said operator including a dog pivoted on the bolt, rotatable tumblers to be engaged by the dog, means normally preventing retraction of said bolt, an electro-magnet for controlling said means, a first circuit for controlling said electro-magnet, a switch operable by the dog as the dog shifts toward the tumblers, a second circuit for said switch, and means operable by said second circuit to open said first circuit rendering said first circuit ineffective.

5. A lock comprising a bolt, means for retracting said bolt, dogging means normally preventing retraction of said bolt, an electro-magnet for controlling said dogging means, an operating circuit for controlling said electro-magnet having manually operable switch means for controlling the retracting means, a second normally closed switch in said operating circuit, a control circuit for said second switch, and a third switch in said control circuit operable by said bolt retracting means.

CHARLES F. MEILINK.