Sept. 23, 1941. C. A. FOWLER 2,256,827

SAFE LOCK

Filed May 22, 1940

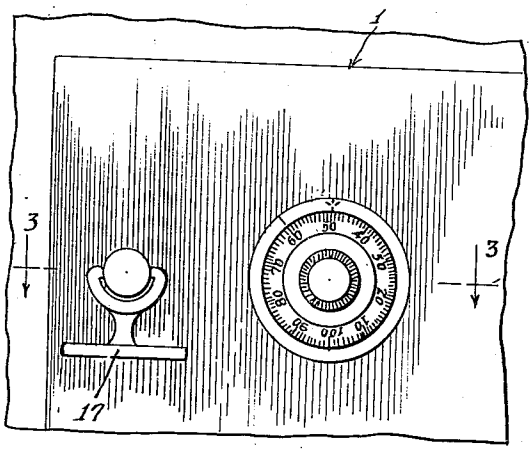


Fig. 1

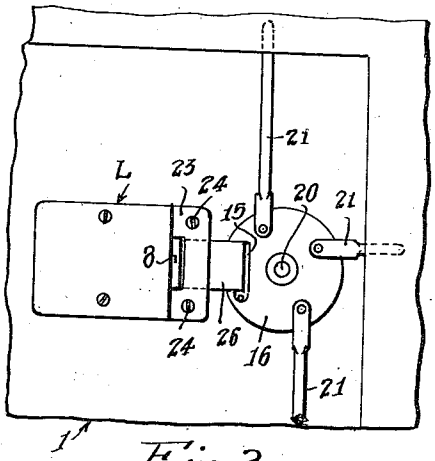


Fig. 2

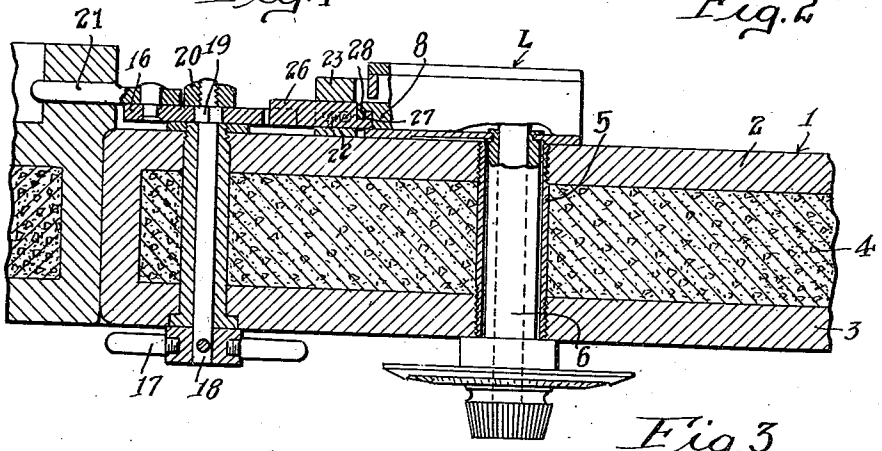


Fig. 3

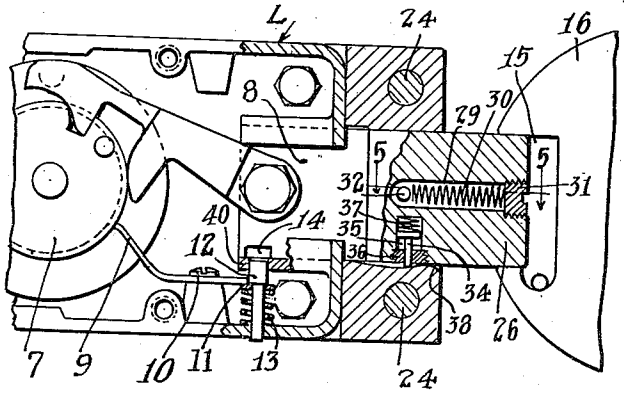


Fig. 4

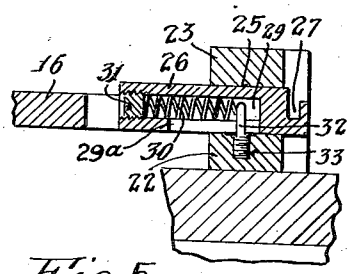


Fig. 5

Inventor

Charles A. Fowler

By Lyon & Lyon

Attorneys

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SAFE LOCK

Charles A. Fowler, Salt Lake City, Utah

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6 Claims. (Cl. 70—1.5)

My invention relates to a lock interposed between the usual locking mechanism and the tumbler operating mechanism on fire proof safes and strong boxes.

The present fire proof safes have double walls with an asbestos or cement and asbestos or other fire resistant materials between the walls. The doors of these safes are held in position by bolts extending from all four sides of the door into the safe walls or inner extensions thereon. These bolts are operated by a lever on the outside of the safe and this lever is locked by a bolt actuated by a separate combination or key lock. To prevent safe crackers from easily opening these safes the area surrounding the lock and tumbler control is usually covered with a hard plate to prevent drilling, but an easy way to enter such a safe is to chisel either the combination dial or key lock from the outerside of the door and by use of a punch and sledge hammer drive the spindle out of the lock and place a wire through the opening remaining, pull back the lock bolt and release the bolts. To prevent this practice, several lock manufacturers have placed a trigger in contact with the rear of the lock spindle which actuates a pin. When the spindle is driven out, the trigger actuates this pin and the pin permanently locks the bolt. The safe cracker when he discovers this type of lock then places a punch against the collar for the spindle and drives the entire lock off the door or bends it so badly that the bolt no longer engages the bolt lever.

Another type of safe-guard used on these safes is the type known as the relocking device. In this device secondary bolts are so situated that when the spindle is tampered with they are released and by means of a spring behind them they permanently lock the door. The difficulty with this relocking device is that they are never operated unless there is an attempt to crack the safe and as a result they often rust or corrode in place or the springs lose their force.

My invention overcomes all of the defects of these previous safe locks by being totally independent of any attachments extending through the door which could be driven off and by being actuated every time the door is opened or closed, thus preventing corrosion. If the safe is closed and locked, the lock of my invention is operated and the owner knows that it has not corroded.

My invention consists of a lock mechanism which cooperates with the lock bolt of the usual combination or key lock to lock the bolt lever. If, however, the combination lock is driven from the safe door, my lock remains in contact with the bolt lever and prevents its operation. The bolt of my lock cannot be drawn back by a wire placed through the spindle hole.

It is, therefore, an object of my invention to provide a lock which can be actuated from the outside of a door, but which has no part extending through the door which can be tampered with.

Another object of my invention is to provide a lock between the conventional combination lock and bolt lever which locks the bolt permanently if the conventional lock is tampered with.

Another object of my invention is to provide a locking mechanism which is operated every time the door is opened and thus prevents corrosion and rust.

Another object of my invention is to provide a locking mechanism that is already in the locking position when the safe door is closed and locked and does not depend upon unauthorized tampering with the safe to actuate it or to cause it to engage and lock the bolts.

Other objects of my invention will be apparent from the following description of the preferred form of my invention.

In the drawing:

Fig. 1 is a view showing the locking portion of a door of a safe.

Fig. 2 is a rear view of inner side of the door shown in Fig. 1.

Fig. 3 is a cross section on line 3—3 of Fig. 1.

Fig. 4 is a vertical section through the locking mechanism shown in Fig. 2.

Fig. 5 is a section on 5—5 of Fig. 4.

In the preferred embodiment of my invention, a safe or strong box with a double wall has a door 1. However, my invention will operate on a single walled safe or strong box. Between the inner wall 2 and outer wall 3 of the door 1 is a fire-proof filling 4 composed of asbestos, cement and asbestos or other similar substances. On the inner wall 2 or between the walls 2 and 3 is bolted a locking mechanism L having a sleeve 5 extending through the walls 2 and 3 of the door 1 and cooperating with the spindle 6 as a bearing therefor. The locking mechanism L has the combination plates 7 of the usual form which actuates the locking bolt 8 when the spindle 6 is properly operated.

This locking bolt 8 in the present type of safe locks directly releasably engages a slot in the locking bar actuating plate to be hereinafter described and prevents operation of the locking bars unless disengaged. To prevent the with-

drawal of the bolt 8 when the spindle 6 and combination plates 7 have been removed by a safe cracker by driving the spindle into the safe, the trigger 9 is actuated on its pivot 10 by the driving in of the combination plate 7 against which it is positioned. When actuated on its pivot 10 the trigger disengages from its contact with the shoulder 11 on the relocking pin 12 and permits the spring 13 to expand forcing the pin 12 into the recess 14 in the bolt 8. The pin 12 passes through the bolt guide 40 which is an extension on the exterior wall of the locking mechanism and when released by the trigger 9 prevents withdrawal of the bolt 8.

In the present type of locks the bolt 8 enters the recess 15 in the locking bar plate 16 when the safe is locked. When the bolt 8 is withdrawn the locking bar plate 16 may be rotated by the handle 17 through a spindle 18 attached to the locking bar plate 16 by the squared portion 19 and the nut 20. When the door 1 is closed, it is held in position by the locking bars 21 which are journaled in the door 1 and engage recesses in the safe proper. The locking bars 21 are pivotally connected to the locking bar plate 16 in the usual manner so as to permit their operation when the locking bar plate 16 is rotated.

As is readily apparent either the complete removal of the locking mechanism L including the bolt 8 or the bending of this mechanism out of place by punching, will permit the rotation of the locking bar plate 16 and the opening of the door 1. To prevent this, my invention consists of an extension upon the bolt 8 which will be disengaged from the bolt 8 and still retain the locking bar plate 16 in its locked position.

For this purpose the complementary plates 22 and 23 are bolted to the door by bolts 24. A slot 25 in these plates provides means for positioning a slidable bar 26 therein and acts as a guide for the bar 26. The bar 26 at one end releasably engages the recess 15 and prevents rotation of the locking bar plate 16. At its other end the bar 26 has a groove 27 for engaging a tongue 28 on the bolt 8. Operation of the bolt 8 by the lock mechanism L will withdraw the bar 26 from the recess 15 and permit the opening of the safe. However, if the lock mechanism and bolt 8 are driven off from the safe, the tongue 28 will readily slip out of the groove 27 and leave the safe in a locked position.

As a further precaution against opening of the safe door, I provide the bar 26 with a bore 29 in which is positioned a spring 30. The spring 30 is maintained therein by the nut 31. A pin 32 is screwed into the bore 33 in the guide plate 22 and extends into an opening 29^1 in the bore 29. If the connection between the bolt 8 and the bar 26 is broken by the slipping of the tongue 28 from the groove 27, the spring 30 acting upon the pin 32 will force the bar 26 further into the recess 15 and allow the pin 34 held in the bore 35 by the nut 36 and actuated by the spring 37 to be released and prevent withdrawal of the bar 26.

It will be noted that the bar 26 is always in engagement with the recess 15 in the locking bar plate 16 when the door is in a locked position and does not rely to bring it into a locked position on any springs, triggers or other mechanism operated when an attempt is made to break into the door. An attempt to break into the door by driving off the locked mechanism L removes all contact with the exterior of the door and the bar 26 preventing the opening of the door. The essence of my invention is that any tampering with the actuating mechanism (the locking mechanism L) of the bar 26 such as driving, will disengage all external connection with the bar 26.

It might be possible to insert a wire into the hole left by driving off the lock mechanism L and spindle 6, thus engaging the groove 27 and withdrawing the bar 26. The contact of the pin 34 against the surface of the plate 22 prevents this withdrawal.

To protect against a possible rusting or corrosion of the pin 34 and spring 37, the slot 25 has a curved surface 38 against which the pin 34 bears. When the safe is opened and shut, the pin 34 is thus moved back and forth and prevented from rusting in place.

Any type of connection between the bolt 8 and the bar 26 which would be readily disengaged might be used in a lock built in accordance with my invention.

While I have described the preferred embodiment of my invention, I am not limited to the details therein shown except pointed out in the appended claims.

I claim:

1. In a safe lock the combination of a locking bolt, a locking mechanism releasably connected to said locking bolt, guides for said locking bolt, a pin mounted on one of said guides and engaging a spring on said locking bolt whereby disconnecting said locking bolt and said locking mechanism moves said locking bolt further into its locked position, a pin journaled in said locking bolt and spring actuated, said pin normally held in position by said guides, but released to bear against exterior of said guides when said locking bolt is actuated by the pin mounted on the guide.

2. In a safe lock the combination of a locking bolt, a locking mechanism releasably connected to said locking bolt, guides for said locking bolt, a pin mounted on one of said guides and engaging a spring on said locking bolt whereby disconnecting said locking bolt and said locking mechanism moves said locking bolt further into its locked position, a pin journaled in said locking bolt and spring actuated, said pin normally held in position by said guides, but released to bear against exterior of said guides when said locking bolt is actuated by the pin mounted on the guide, and the surface of the guides maintaining the pin on the lock bolt in position being curved whereby said pin is prevented from rusting or corroding in place.

3. In a safe lock, a locking bolt which is locked position engages a slot in a bolt actuating device to prevent operation of said bolt actuating device, a locking mechanism detachably connected to said locking bolt and adapted to actuate and withdraw said locking bolt from said slot, and means carried by said locking bolt for locking said locking bolt in said slot when said locking mechanism is disengaged from said locking bolt.

4. In a safe lock, a locking bolt which in locked position engages and prevents operation of a bolt actuating device, a locking mechanism detachably connected to said locking bolt and adapted to actuate and withdraw said locking bolt from engagement with said bolt actuating device, and means carried by said locking bolt for locking said locking bolt in said engagement when said locking mechanism is disengaged from said locking bolt.

5. In a safe lock, a locking bolt which in locked

position engages and prevents operation of a bolt actuating device, a locking mechanism detachably connected to said locking bolt and adapted to actuate and withdraw said locking bolt from engagement with said bolt actuating device, guides for said locking bolt, a pin mounted on one of said guides and engaging a spring on said locking bolt whereby upon disconnecting said locking bolt and said locking mechanism said pin moves said locking bolt further into its locked position and releases a spring actuated pin journaled in said locking bolt and normally held in position by said guides to bear against the exterior of said guides and prevent withdrawal of said locking bolt.

6. In a safe lock, a locking bolt which in locked position engages and prevents operation of a bolt actuating device, a locking mechanism detachably connected to said locking bolt and adapted to actuate and withdraw said locking bolt from engagement with said bolt actuating device, guides for said locking bolt, a pin mounted on one of said guides and engaging a spring on said locking bolt whereby upon disconnecting said locking bolt and said locking mechanism said pin moves said locking bolt further into its locked position and releases a spring actuated pin journaled in said locking bolt and normally held in position by said guides to bear against the exterior of said guides and prevent withdrawal of said locking bolt, and the surface of the guides maintaining said pin on said locking bolt in position being curved to permit a limited release when said locking bolt is normally actuated by said pin, whereby said pin is prevented from corroding in place.

CHARLES A. FOWLER.