Mar. 13, 1923. 1,448,525.

W. C. DILLON.

SAFETY LOCK DEVICE.

FILED SEPT. 27, 1921.

Fig. 2

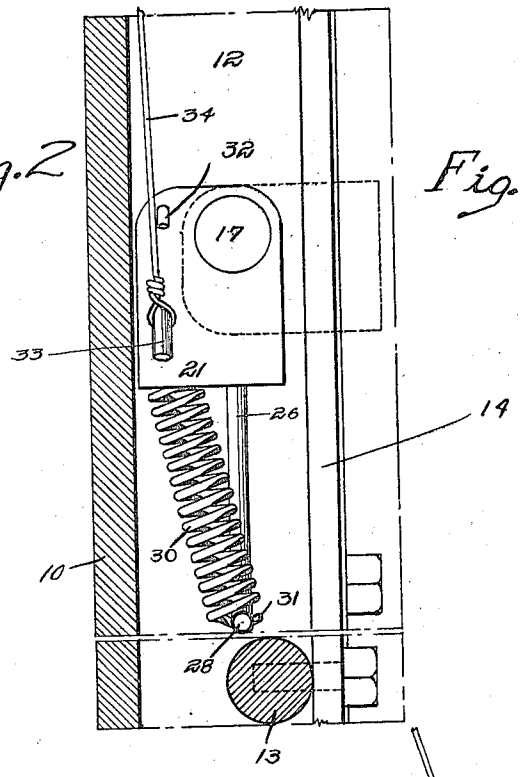


Fig. 1

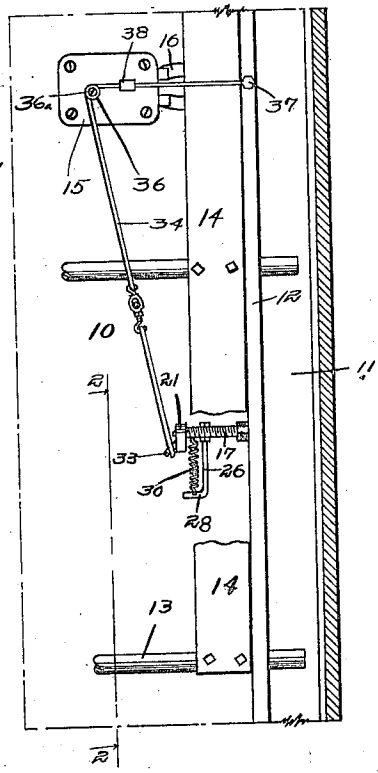


Fig. 3

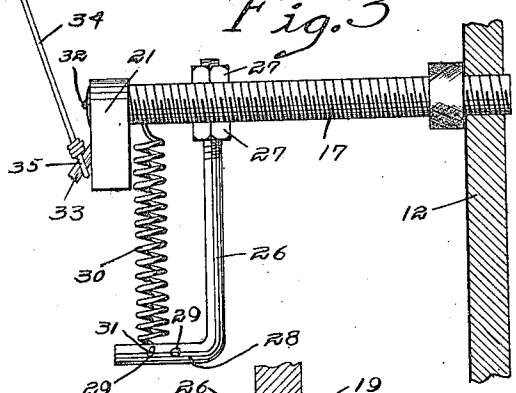


Fig. 5

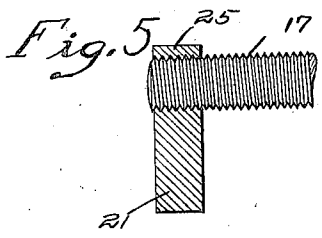


Fig. 6

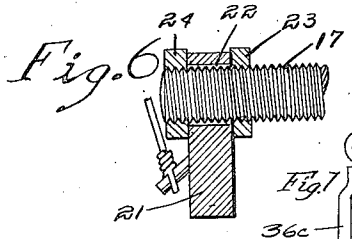


Fig. 7

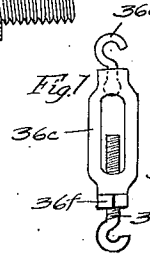
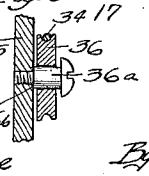


Fig. 8



Witness

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UNITED STATES PATENT OFFICE.

WILLIAM C. DILLON, OF FORT DODGE, IOWA.

SAFETY LOCK DEVICE.

Application filed September 27, 1921. Serial No. 503,687.

To all whom it may concern:

Be it known that I, WILLIAM C. DILLON, a citizen of the United States, and a resident of Fort Dodge, in the county of Webster and State of Iowa, have invented a certain new and useful Safety Lock Device, of which the following is a specification.

The object of my invention is to provide a safety lock device adapted to be mounted on the inside of a door of a vault or safe or the like in such manner as to be normally inoperative and adapted to be released and actuated, when the door is attacked by burglars.

A further object is to provide such a lock having a locking element adapted when actuated to lock the regular locking mechanism on the vault door in closed position, which lock tends to move to locking position and is under ordinary circumstances held inoperative by an element extending to or adjacent to the point most likely to be attacked by a burglar.

With these and other objects in view, my invention consists in the construction arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows an elevation of the inside of a vault door equipped with a safety lock embodying my invention.

Figure 2 shows an enlarged, detail view of the safety lock, the door being shown in section, taken on the line 2—2 of Figure 1.

Figure 3 is an enlarged, elevation of the lock structure.

Figure 4 is a detail, sectional view illustrating a slightly different method of mounting the lock on the door.

Figure 5 is a detail, sectional view of part of the lock structure, illustrating the method of mounting the locking block on the bolt.

Figure 6 is a similar view of a slightly modified form of the device.

Figure 7 is a detail view of the turnbuckle used to keep the release wire taut; and

Figure 8 is a detail, sectional view through the guide pulley.

It is well known to those familiar with the banking business that the attack on a vault door by a burglar is usually directed against the combination lock or the parts near thereto. This is due to the fact that ordinarily a bank or vault door is provided with a series of large locking bolts, which are connected together for simultaneous operation.

Some means is ordinarily provided, whereby when the regular locking bolts are shot to closed position, they may be held against unlocking movement. This means is usually a bolt or the like operated from the combination lock.

In Figure 1, I have used the reference numeral 10 to indicate generally the main body of a vault door, which rests adjacent to a door jamb or frame 11 at its free edge.

Adjacent to the free edge of the vault door 10 on the inside thereof is an inwardly projecting strip or flange 12. Slidably mounted in the flange 12 are the regular locking bolts 13, which are connected together by a bar or apron 14.

It will be understood that the apron 14 is moved inwardly and outwardly ordinarily by means of a handle outside the door and suitably connected with the apron or bar 14.

On the inside of the door 10 is the ordinary combination locking mechanism 15, which usually includes a locking bolt arranged to co-act with the locking mechanism on the apron or bar 14 for locking the bolts 13 in their closed position.

In an attack upon the vault door, the burglar usually attacks either the combination lock or the locking elements 16 between the combination lock and the front edge of the door. The ordinary methods of attack are three kinds. The burglar may drill one or more holes from the outside of the vault door adjacent to the combination dial, fill these holes with an explosive and blow off the combination lock with the locking mechanism contained therein. This will permit the handle to be operated for unlocking the door.

The burglar may knock off the knob of the dial and then punch the spindle inwardly whereupon he has access to the interior of the combination lock and manipulates the tumblers therein, until the bolts 13 can be withdrawn.

The burglar may use an acetylene torch or the like and burn through the door. In which case, he may destroy the combination lock by burning a circle entirely around it, or he may burn across the locking elements 16, whereupon the regular locking mechanism of the door may be opened.

For ordinarily locking the regular locking mechanism against opening, when the combination lock or parts adjacent thereto are attacked, I have provided my auxiliary lock, which will now be described.

My lock comprises a post or the like 17, which is preferably mounted in the flange or strip 12. The post 17 may be mounted in various ways. It may be screwed into a hole in the flange 12 provided therefor, as shown for instance in Figure 3. It may be extended through a hole 18 and may be screw-threaded and provided with lock nuts 19 and 20 as shown in Figure 4.

Mounted on the post 17 for rotation is a locking block 21. This block may be screwed onto the post 17, as shown in Figure 5.

In Figure 6 I have shown the locking block 21 secured to the post 17 in a slightly different manner. In this construction the locking block 21 is provided with an opening 22 which opening is large enough to receive the screw threaded post 17. Lock nuts 23 and 24 are then provided on each side of the locking block 21.

In Figure 5 of the drawings the locking block 21 is provided with an opening 25 which is screw threaded and adapted to coact with the screw threads on the post 17.

From the construction of the parts just described it will be seen that the locking block 21 may be shifted longitudinally on the post 17 so that it may be permitted to operate on vault doors where the apron 14 is of different widths.

Mounted on the post 17 preferably by being extended therethrough is a bracket 26, on which may be provided lock nuts 27. The bracket 26 has at its outer end farthest from the post 17 a right-angled extension 28, provided with holes 29. The extension 28 is parallel with the post 17.

A coil spring 30 has one end formed into a hook 31 which is extended through one of the holes 29 in the right-angled extension 28. The free end of the coil spring 30 is provided with a hook portion 32 which is received in an opening provided in the locking block 21.

The coil spring 30 is designed to normally cause the locking block to move into position where it extends in the path of movement of the apron 14.

It will be understood that the post 17 is mounted in the strip 12 between the apron 14 and the main body portion of the door 10, as clearly shown in Figure 2 of the drawings.

In order to hold the locking block 21 in inoperative position so as to permit the locking bolts and apron 14 to move from open to closed position or vice-versa, I provide the following described means.

On the locking block 21, I provide an inclined pin or the like 33; the block 21 is longer than it is wide so that when it is in locking position it extends in the path of travel of the apron 14 and when in vertical or unlocked position as shown in Figure 2, it stands behind the apron 14 and will not therefore interfere with the ordinary opening and closing of the vault door and the operation of the locking mechanism.

A wire or other flexible element 34 is provided which has a loop 35 formed at one end thereof, which loop extends over the inclined pin 33.

On the combination lock 15, I provide a guide pulley 36 around which passes the wire 34 as clearly shown in Figure 1; the wire extends from the guide pulley 36 directly forward to the front part of the door and is fastened to the flange 12 by means of a screw 37. The wire 34 is under such tension as to hold the locking block 21 in inoperative position.

In order that the guide pulley 36 may always rotate freely, I provide a pivot pin 36^a having a shoulder 36^b to prevent its being screwed too tightly, into the combination lock. By providing the freely rotating pulley around which the wire passes, the release of the wire is insured when it is cut below the combination lock.

In order to keep the wire always taut, I provide between the point where it is fastened to the block 21 and the combination lock, a turnbuckle 36^e, having the swivel connection 36^d and the screw connection 36^e. A lock nut 36^f is provided on the screw 36^e, which may be tightened, so that the turnbuckle can not be tampered with by a careless person, and can only be turned with the aid of a pair of pliers.

Another advantage of the turnbuckle is that by loosening it, the wire can be readily removed from the pulley 36 for inspecting the combination lock.

Under working conditions when the vault door is attacked, the operation of my device is as follows: If the combination lock were attacked and blown off the wire would become broken or severed from the guide pulley 36 so that the coil spring 30 would then cause the locking block 21 to be moved to locking position where it will be in the path of the normal movement of the apron 14.

One of the methods sometimes used by burglars is the punching inwardly of the combination lock.

From the construction of the parts just described, it will be seen that if the combination lock were punched inwardly it would cause the wire to be moved inwardly releasing the tension and permitting the locking block 21 to operate due to the tension of the spring 30.

It will also be understood that if the vault door is burned, one of the methods sometimes used, the burning of the wire 34 will permit

the locking block to rotate. In order to make my device more sensitive to heat I provide a fuse link element 38 in the wire 34. The fuse link 38 will melt at a relative low temperature so that if heat was applied near the fuse element it would melt and the wire would be released.

The provision of the inclined pin 33 is very desirable due to the fact that when the wire 34 is released and the locking block 21 rotated, the wire 34 will slide from the pin 33 thereby leaving the locking block free from the wire. Were the wire 34 permanently fastened to the locking block 21, then there might be a possibility of a burglar burning a large enough hole in the vault door and place his hand therethrough.

He could then engage the wire and pull the 21 against the action of the spring 30 and thus open the locking mechanism. With the provision of the inclined pin 33, any such danger is eliminated because the pulling of the wire after the block has been moved to operative position would cause it to slide off of the pin if it had not already fallen off by gravity.

Changes may be made in the construction, installation and arrangement of my improved safety lock, without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure of use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. A safety lock, comprising a supporting member, a locking block mounted thereon for rotation, a spring connected with said locking block and tending to yieldingly move said locking blocks in position of the path of movement of the regular locking mechanism of a vault door, an inclined pin on said locking block, a wire having a loop mounted over said inclined pin, a guide element designed to be on the combination lock of a vault door, said wire being extended around said guide member and thence forwardly to the front of the door and secured near the front edge thereof.

2. A safety lock, comprising a supporting member, a locking block mounted thereon for rotation, a spring connected with said locking block and tending to yieldingly move said locking block in position of the path of movement of the regular locking mechanism of a vault door, a wire secured to said locking block and designed to be extended to position near the combination lock on a vault door, said wire having a fusible element included therein.

3. In a device of the class described, a locking element, a spring for normally causing said locking element to be moved into the path of movement of the regular locking mechanism on a vault door, a member secured to said locking element and designed to be extended to the combination lock on a vault door for preventing the operation of the spring, said last element including a fusible member.

4. A safety lock, comprising a supporting member, a locking block mounted thereon for rotation, a spring connected with said locking block and tending to yieldingly move said locking block in position of the path of movement of the regular locking mechanism of a vault door, a wire secured to said locking block, and a pulley on the combination lock, the wire being passed around the pulley and thence to a fixed connection on the vault door.

Des Moines, Iowa, August 6, 1921.

WILLIAM C. DILLON.