Nov. 16, 1926. 1,607,068

C. A. FOWLER

AUXILIARY LOCKING BOLT FOR SAFES AND VAULT DOORS

Filed Sept. 26, 1925 3 Sheets-Sheet 1

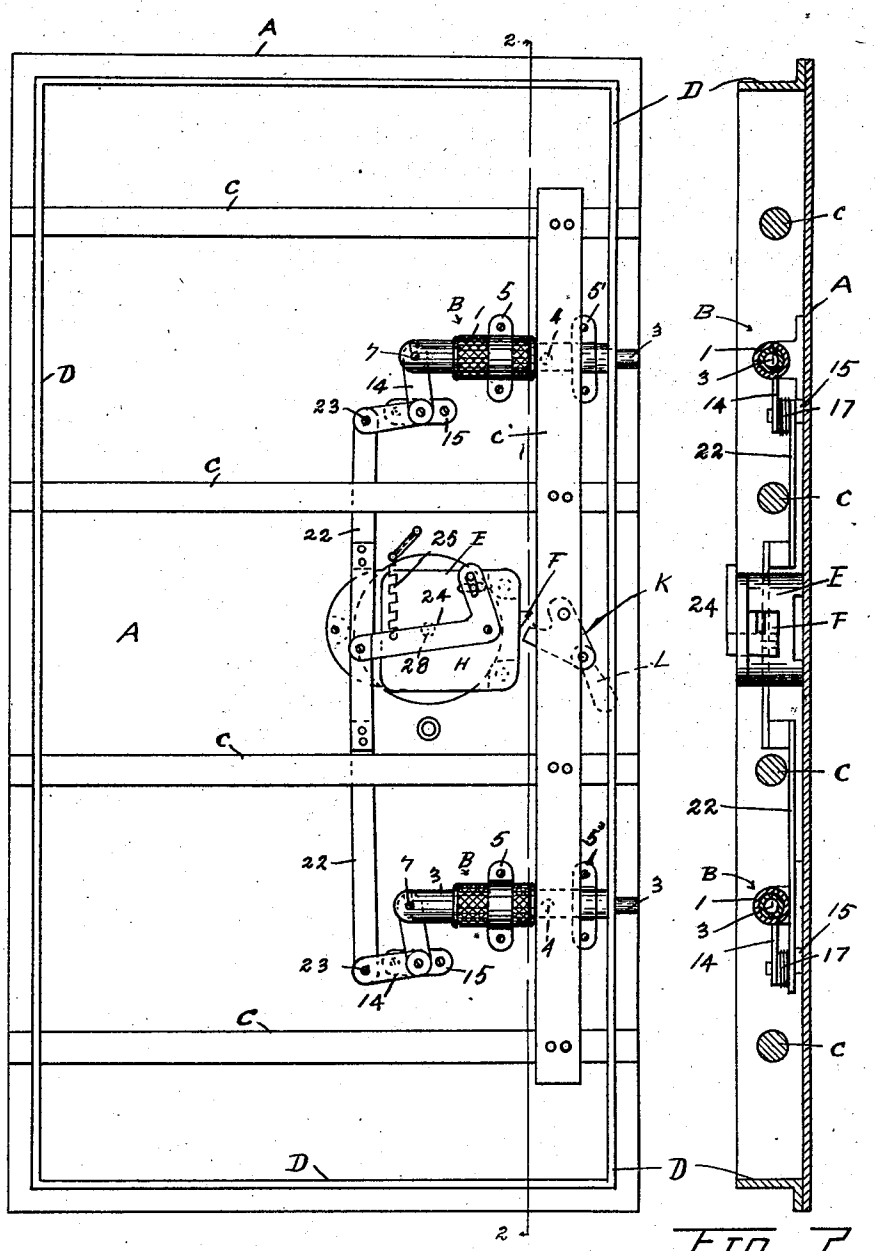


FIG 1

FIG 2

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Filed Sept. 26, 1925 3 Sheets-Sheet 2

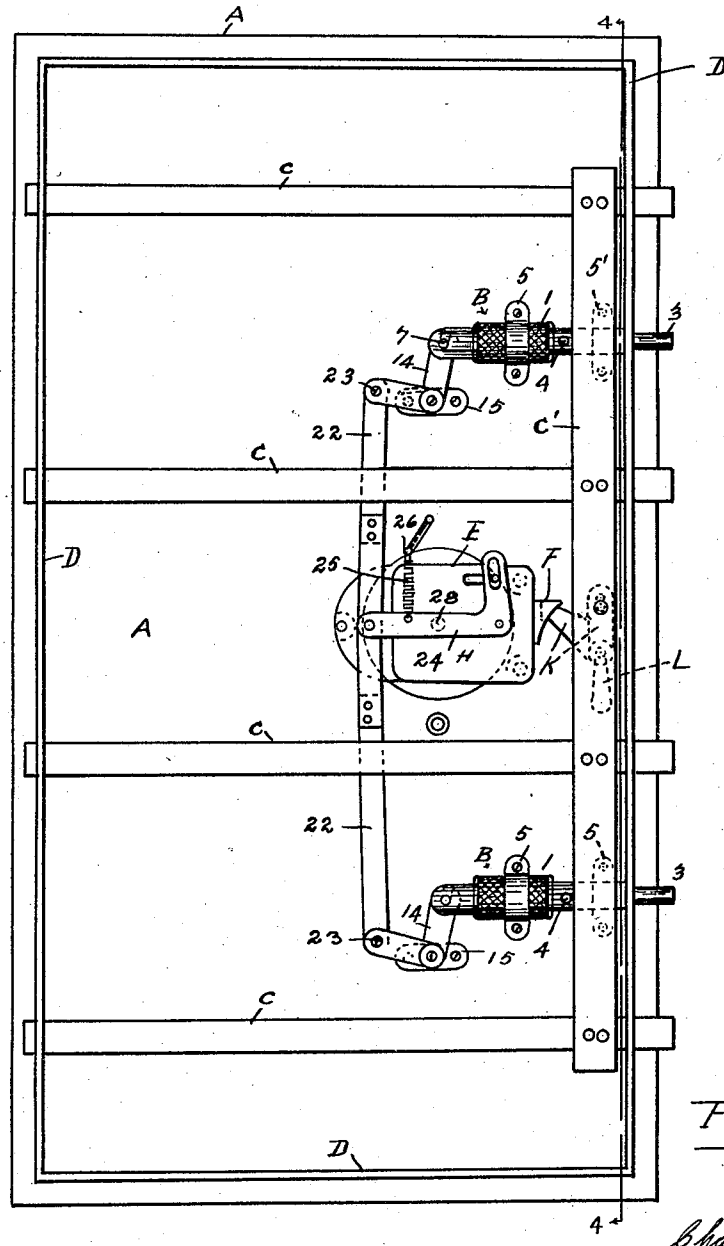


FIG 3

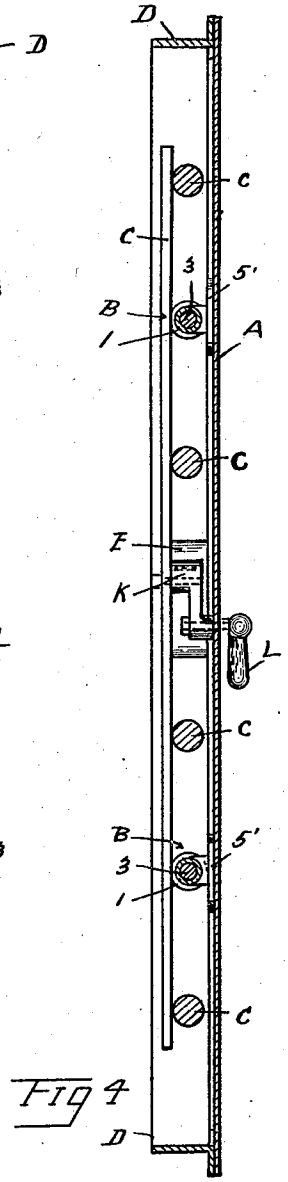


FIG 4

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AUXILIARY LOCKING BOLT FOR SAFES AND VAULT DOORS

Filed Sept. 26, 1925 . 3 Sheets-Sheet 3

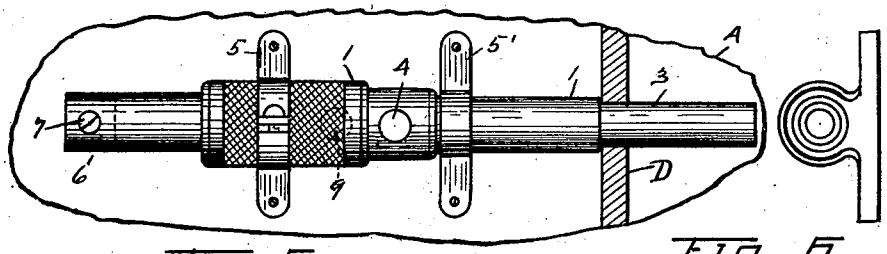


Fig 5

Fig 6

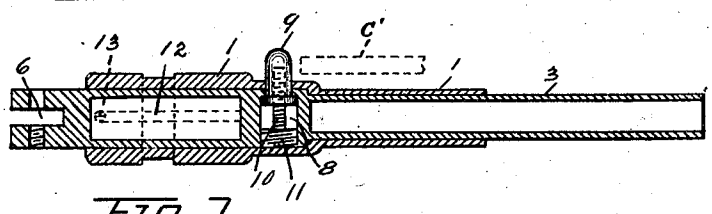


Fig 7

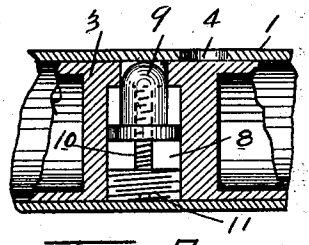


Fig 8

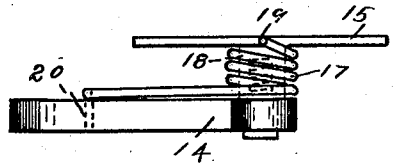


Fig 9

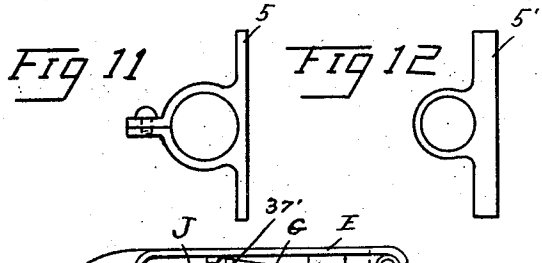


Fig 11

Fig 12

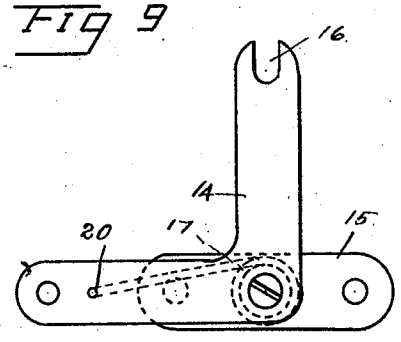


Fig 10

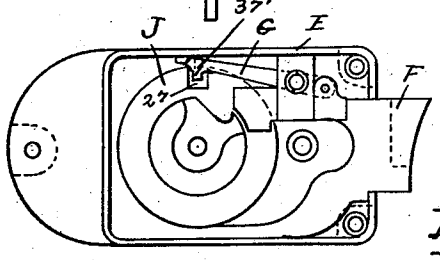


Fig 13

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Patented Nov. 16, 1926. 1,607,068

UNITED STATES PATENT OFFICE.

CHARLES A. FOWLER, OF SALT LAKE CITY, UTAH.

AUXILIARY LOCKING BOLT FOR SAFES AND VAULT DOORS.

Application filed September 26, 1925. Serial No. 58,705.

This invention relates to an improvement in auxiliary locking bolts designed especially for use and to be operated in combination with the locking mechanism of safes and vault doors.

One object of this invention is to provide an emergency locking bolt to pass through the side of the door and enter the jamb of the door in the locking of the combination mechanism shown and claimed in my applications for patent Serial Numbers, 707,474 filed Apr. 18, 1924, and 8,101 filed Feb. 10, 1925.

Another object of this invention is to provide an auxiliary locking bolt which by reason of the adjustability and various lengths of the connecting rod it can be placed to operate vertically or horizontally in parallel relation to a cross bolt on a vault door regardless of the location of the permutation lock and cross bolts commonly used on the door.

Another object of this invention is to provide an auxiliary locking bolt connected by a rod to an operating lever that is operated by a permutation lock mechanism adapted to cause direct operation of the auxiliary bolt in coaction with the movement of the tumblers and bolt of the combination mechanism.

Another object of this invention is to provide an auxiliary locking bolt that will automatically lock the cross bolts on the door in emergency locked position when the main locking mechanism on the door is tampered with for unauthorized entrance to the vault.

Another object of this invention is to provide an auxiliary locking bolt, whereby the moment the handle on the door is moved downward to move the cross bolts to the locked position the tumblers of the combination mechanism will be automatically thrown back and lock the door.

With these and other objects in view my invention consists of the following arrangement of parts to be hereinafter described and claimed.

Referring to the drawings, in which:

Figure 1 is a view showing the inside of a vault door in an unlocked position showing my invention applied thereon.

Fig. 2, is a section on line 2—2 Fig. 1.

Fig. 3, is a view showing the inside of a vault door with my invention applied thereon in a natural locked position.

Fig. 4, is a view on line 4—4, Fig. 3.

Fig. 5, is a fragmentary section of a vault door showing the invention applied thereon.

Fig. 6, is an end view of the bolt and anchors.

Fig. 7, is a sectional elevation showing the bolt in the emergency locked position.

Fig. 8, is a fragmentary section of the sleeve and bolt showing the tang 9 in the natural position.

Fig. 9, is a plan view of a bell crank lever.

Fig. 10, is a side view of Fig. 9.

Fig. 11, is a side view of the anchor 5.

Fig. 12, is a side view of the anchor 5′.

Fig. 13, is a view of a permutation lock with the cover removed to show mechanism thereof in a locked position.

Similar letters and numerals refer to like parts throughout the several views of the drawings.

The reference character; A denotes a vault door, B the emergency locking bolt, C the cross bolts on the door, C′ a bar for connecting the cross bolts together, D a flange adjacent to the edge of the door through which the bolts project and operate; E denotes a casing of a permutation lock, F the bolt, G the dog, J the tumblers, H the cover for the casing, L the handle on the door and K the catch on the handle for locking the cross bolts to the bolt F.

The invention comprises a sleeve 1 and a bolt 3. The sleeve member has a hole 4 therein and anchors 5 and 5′ mounted thereon. The bolt member 3 has a slot 6 in the inner end thereof with a screw 7 passing therethrough.

In the center of the bolt 3 is a hole 8 in which is placed a pin 9. The pin 9 has a hole therein in which is placed a spring 10 said spring to move the pin outward when the bolt is in an emergency locked position. The pin 9 is held in the hole 8 by a screw plug 11 at one end and the inner wall of the sleeve at the other end.

On the under side of the bolt 3 and near the inner end is a slot or groove 12, and passing through the sleeve in line with the groove is a screw 13 the inner end thereof entering the groove to prevent the bolt turning in the sleeve.

A bell crank lever 14 is pivotally mounted on an anchor plate 15 the upper end thereof having a notch 16 therein to fit over the

screw 7 in the slot 6 at the inner end of the bolt 3. The anchor plate 15 has a projection 18 thereon around which is placed a spring 17 one end thereof bent to fit in a hole 19 in the anchor plate and the other end thereof bent to fit in a hole 20 in an arm on the bell crank lever.

Having described the parts of my invention I will now apply the same to a vault door.

To apply the invention to a vault door drill a hole through the flange D at the place the bolt is to be placed on the door. Take the invention as assembled and place the outer end of the bolt 3 through the hole, place the sleeve 1 in such a manner back of the connecting bar C' so that the pin 9 will pass by the inner edge of the connecting bar C' when the cross bolts are in a locked position, then secure the sleeve 1 to the face of the door by screws through the anchors 5 and 5'.

After the invention has been secured to the door as described, take the bell crank lever 14 placing the upper end in the notch 6 so the notch 16 will be over the screw 7. Now secure the anchor plate 15 to the door face by screws or bolts thus holding the bell crank lever in the proper place for operating the bolt 3. Now take a rod 22, secure its ends to bell crank levers 14 by screws 23 and pivotally secure the center of the rod 22 to the end of the lever 24 which is pivotally secured on the casing of the permutation lock. In the drawings I show two auxiliary bolts B applied to the door. One or more bolts may be used if desired.

The operation of this invention is the same as I use in my applications for patent Serial Numbers 707,474 filed Apr. 18, 1924 and 8,101 filed Feb. 10, 1925. I will only describe the movements of the locking mechanism to operate the auxiliary locking bolt.

In Fig. 1 the bolts are all shown in an unlocked position. To move the bolts to the locked position handle L is moved downward which allows the cross bolts to be moved outward by the catch K connected to the handle L and the connecting bar C' and at the same time spring 17 on the bell crank lever in coaction with the spring 25 will move the bell crank lever upward and draw the lever 24 upward operating the lever 24 in such a manner that the bolt F will be moved out of the casing E and the auxiliary bolt will be moved to the locked position. The spring 25 is connected to a staff 26 and the other end to the operating lever 24.

To unlock the door the movement of the bolt F and the bolt 3 is effected by a direct action of a series of rotating tumblers of the permutation lock. The dog G pivoted at one end to the bolt F carries at the other end a projecting arm 37', which, when the tumblers are arranged in a certain position falls into a notch or gate 27 thus drawing the bolt F into the casing lowering lever 24 which in turn operates the rod 22 downward drawing one arm of the bell crank lever downward and the other end inward which moves the auxiliary locking bolt 3 to an unlocked position.

In the event that the vault door was tampered with to secure entrance thereto by other means than working the combination, the result would be as follows.

If the spindle 28 be driven in, the back of the casing E would be broken off the casing, the rod 22 connecting the lever 24 with the bell crank lever 14 would be broken allowing the spring 17 to move the bell crank lever 14 towards the auxiliary bolt thus moving the bolt forward to the emergency locked position which allows the pin 9 to enter and pass through the hole 4 and back of the inner edge of the connecting bar C' thus preventing the movement of the cross bolts C and the emergency locking bolt 3 to the unlocked position.

In placing the auxiliary bolt on a vault door the measurement of its location is taken and placed away for record. In opening the door this record must be used to get the exact location of the bolt. At this location a hole is drilled through the door face to allow the necessary tools to be placed therein to move the pin 9 into the sleeve and to move the bolt 3 to the unlocked position to allow the cross bolts to be moved by the handle to the unlocked position to open the door.

Having described the invention what I claim as new and desire to secure by Letters Patent, is:

1. An auxiliary locking bolt for vault doors in combination with a locking device on the door including a cross bolt mechanism, a combination mechanism and an operating lever pivotally mounted on the casing of said combination mechanism; said auxiliary locking bolt comprises a sleeve having a hole therein, a bolt within said sleeve with a pin therein, said pin to enter said hole when said bolt is in the emergency locked position, and means for operating said bolt by the combination mechanism.

2. An auxiliary locking device in combination with a vault door including a bolt mechanism, a combination mechanism and a lever pivotally mounted on the casing of said combination mechanism, said auxiliary locking device consisting of a sleeve carried on the door face, a bolt within said sleeve and adapted to be projected through the side of the door and to engage the door frame, a bell crank lever pivotally mounted on the door face and connected to said bolt, and a rod

connecting said bell crank lever with said lever on said casing, said bell crank lever, rod and lever, for operating said bolt in coaction with the combination mechanism substantially as described.

3. An auxiliary locking bolt in combination with a vault door having a flange adjacent to the ege thereof, a locking device on the door including a combination mechanism, a plurality of cross bolts arranged to project through said flange, a bar connecting said bolts and a lever operated by said combination mechanism, said auxiliary locking bolt consisting of a sleeve secured to the door face, a bolt operated in said sleeve and adapted to be projected through said flange by the movement of the combination mechanism, and means connected to said combination mechanism and to said bolt for the coaction of said bolt with said combination mechanism.

4. An auxiliary locking device in combination with a vault door including a bolt mechanism, a combination mechanism and a lever pivotally secured to the casing of the combination mechanism and operated by said combination mechanism; said auxiliary locking device consisting of a sleeve secured to the door face, said sleeve has a hole therein, a bolt operating within said sleeve and adapted to be projected through a flange on said door, said bolt has a hole therein, and a pin in said hole in said bolt, said pin to engage the hole in said sleeve to lock said bolt in an emergency locked position.

In witness whereof I affix my signature.

CHARLES A. FOWLER.