Sept. 28, 1926. 1,600,982

W. O. GOLLOWAY ET AL

AUXILIARY LOCK FOR BOLT WORKS

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Fig. 1

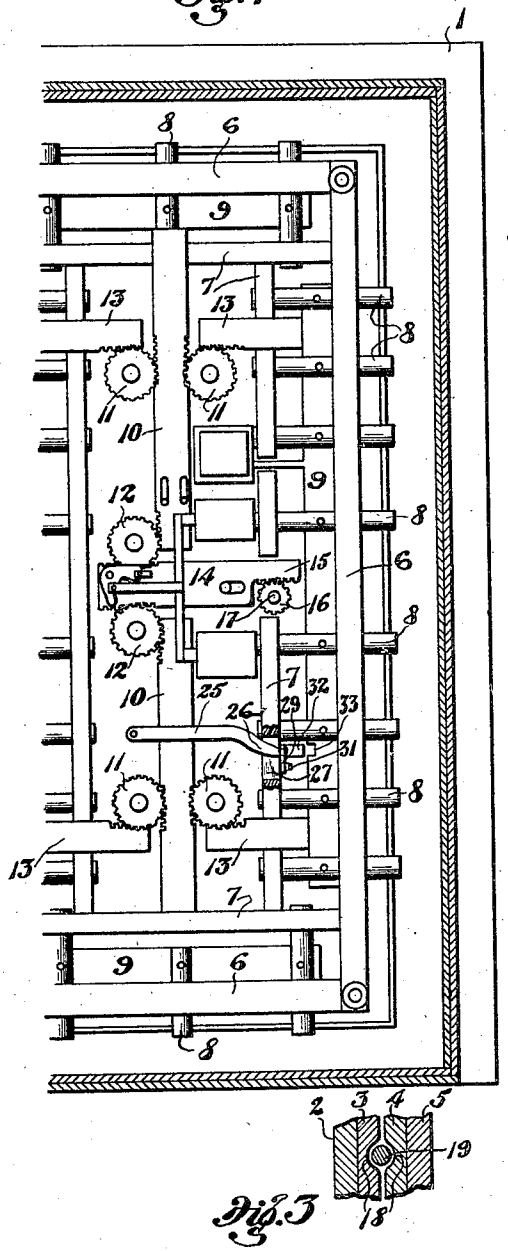


Fig. 2

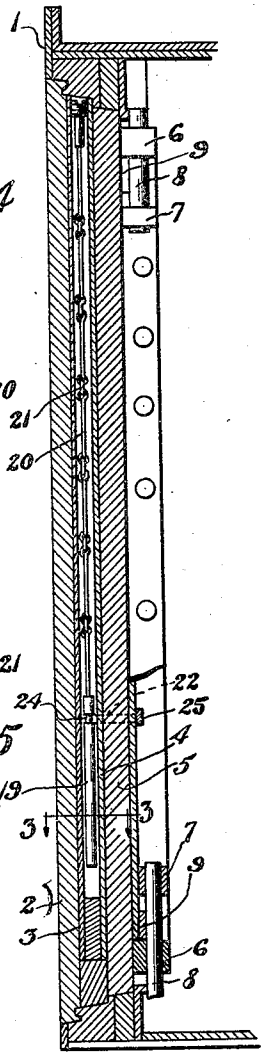


Fig. 4



Fig. 5



Fig. 3

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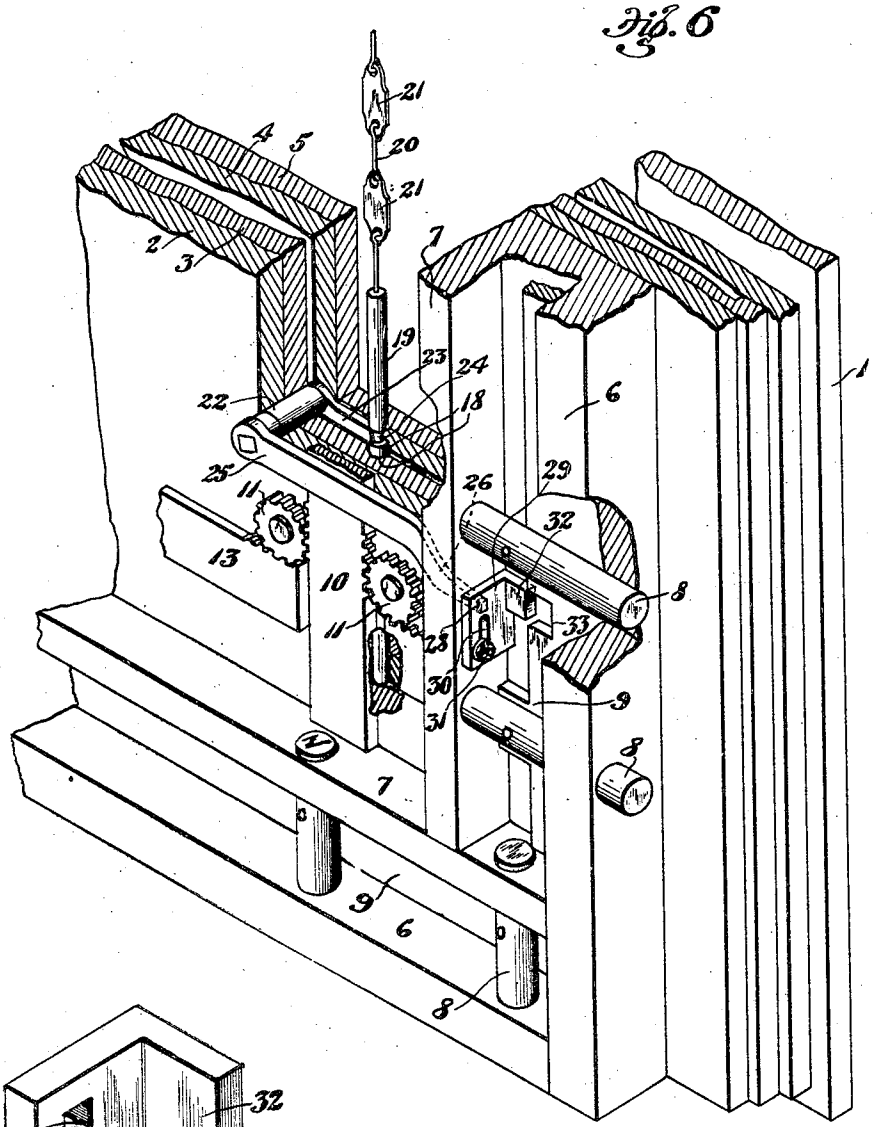
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Fig. 6



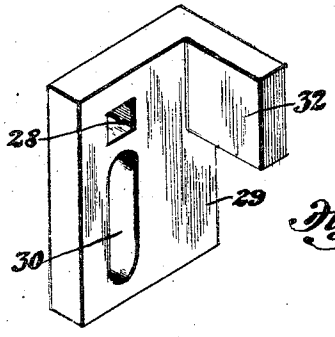


Fig. 7

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UNITED STATES PATENT OFFICE.

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AUXILIARY LOCK FOR BOLT WORKS.

Application filed July 27, 1922. Serial No. 577,837.

This invention relates to auxiliary locks for bolt work and particularly to an auxiliary locking device for use in connection with the ordinary locking mechanism of safes and vaults.

The objects of the invention are to provide an auxiliary locking device which will automatically operate to lock the bolt work of the safe or vault door when the same is tampered with, either by an oxy-acetylene or other torch flame, or explosives, preventing manipulation of the bolt work and precluding the opening of the door.

The above and other objects may be attained by constructing the device as illustrated in the accompanying drawings, in which—

Figure 1 is a rear elevation of a safe or vault door showing the application of the invention to the usual bolt work;

Fig. 2, a vertical sectional view thereof;

Fig. 3, a section on the line 3—3, Fig. 2;

Figs. 4 and 5, detail perspective views of the links of the fusible chain;

Fig. 6, a fragmentary perspective view of a portion of the door and bolt work, showing the auxiliary locking device; and

Fig. 7, a detail perspective view of the sliding locking plate.

Similar numerals refer to similar parts throughout the drawings.

The door of a safe or vault is indicated generally at 1, which is shown as comprising the plates 2, 3, 4 and 5 which are preferably formed of different grades of steel, certain of the plates being drill resisting, while the other plates are torch resisting.

The usual bolt bars 6 and 7 are arranged in parallel relation upon the rear face of the door, the usual locking bolts 9 being slidably located through said bars and arranged to be moved in unison by means of the bolt carrying bars 9, one of which is provided for each side of the door, all of the locking bolts upon each side of the door being connected to the accompanying bolt carrying bar.

A pair of alined rack bars 10 are connected to the upper and lower bolt carrying bars, each of said rack bars being engaged upon opposite sides by the pinions 11 and near its inner end by the pinion 12. A pair of short rack bars 13 is connected to each of the side bolt carrying bars and engages the adjacent pinion 11.

The operating bar 14 is provided with rack portions engaging the pinions 12 and with a rack portion 15 engaging the pinion 16 upon the operating spindle 17. All of the above construction is usual in safe and vault bolt work and may be varied to some extent, and does not form a part of the present invention.

The plates 3 and 4 are provided with half round, longitudinal grooves 18 which register with one another, forming a vertical bore through the center of the door of slightly greater diameter than the weight 19, which is suspended therein upon a fragile supporting member arranged to separate upon the application of heat or explosion, such as the chain composed of alternate links 20 and 21, the latter being formed of a metal which fuses at a low temperature. An air space is formed between the plates 3 and 4 by spacing said plates apart in any suitable and well known manner.

A short shaft 22 is journaled through the plates 2 and 3 and provided upon its inner end with a fixed finger 23, the free extremity of which engages the annular groove 24 in the weight 19. A rocker arm 25 is fixed to the outer end of the shaft 22 and provided with a downwardly curved extremity 26 located through the slot 27 in the adjacent bolt bar 7 and engaging an aperture 28 in the sliding locking plate 29, which is provided with a vertical slot 30 receiving the cap screw 31 by means of which the plate is mounted for vertical sliding motion upon the adjacent bolt bar 7. An angular locking lug 32 is provided upon the locking plate 29 and arranged to be normally received into the notch 33 in the adjacent bolt carrying bar 9, to allow manuipulation of the bolt work.

The operation of the device is as follows; as is well understood, the bolt work is operated by the rotation of the spindle 17 operating all of the rack bars and pinions to withdraw or extend all of the locking bolts 8 in the usual manner. As the bolt carrying bars are moved outward or inward to extend or withdraw the bolts, the lock-

ing lugs 32 will be received into the notch 33 of the adjacent bolt carrying bar as the lug and notch normally register.

When an oxy-acetylene or other torch, or an explosive is used in an attempt to open the door by an unauthorized person, one or more of the fusible links 21 will be melted or shattered, allowing the weight 19 to drop to the bottom of the vertical bore in which it is suspended. As the weight drops, the rocker arm 23 engaged by the annular groove 24 of the weight, will be swung downward, rocking the shaft 22 and in turn swinging the rocker arm 25 downward, said rocker arm carrying with it the locking plate 29, moving the locking lug 32 out of registration with the notch 33 in the adjacent bolt carrying bar, thus preventing inward movement of said bolt carrying bar, and, since all of the bolt carrying bars are geared together by the rack bars, and pinions above described, any attempt to withdraw the bolts will be frustrated, all of the bolt work being locked against manipulation.

It will thus be seen that an auxiliary locking device is provided which will operate automatically when an oxy-acetylene or other torch or an explosive is used in an unauthorized attempt to open the door, positively locking the bolt work against withdrawal and preventing opening of the door.

We claim:—

1. A safe or vault door provided with a notched bolt carrying bar, a plurality of locking bolts carried thereby, means for moving the bolt carrying bar to extend or withdraw the bolts, a sliding locking plate provided with a lug normally registering with the notch in the bolt carrying bar to permit withdrawal of the bolts a weighted rocker arm and a fusible link connected thereto for automatically sliding the locking plate to move the lug thereon out of registration with the notch in the bolt carrying bar when heat or an explosive is applied to the door.

2. A safe or vault door provided with a notched bolt carrying bar, a plurality of locking bolts carried thereby, means for moving the bolt carrying bar to extend or withdraw the bolts, a sliding locking plate provided with a lug normally registering with the notch in the bolt carrying bar to permit withdrawal of the bolts, a fusible chain suspended within the door, a weight supported upon the chain and a rocker arm operatively connecting the weight to the sliding locking plate to automatically slide the locking plate to move the lug thereon out of registration with the notch in the bolt carrying bar when the fusible chain is fused or shattered.

3. A safe or vault door provided with a notched bolt carrying bar, a plurality of locking bolts carried thereby, means for moving the bolt carrying bar to extend or withdraw the bolts, a sliding locking plate provided with a lug normally registering with the notch in the bolt carrying bar to permit withdrawal of the bolts, a fusible chain suspended within the door, a weight carried by the chain, a rocker shaft journaled in the door, means operatively connecting the rocker shaft to the weight, and a rocker arm carried by the shaft and operatively connected to the sliding locking plate whereby the same is automatically moved to move the locking lug thereon out of registration with the notch in the bolt carrying bar when the weight is released by the fusing or shattering of the fusible chain.

4. A safe or vault door provided with a notched bolt carrying bar, a plurality of locking bolts carried thereby, means for moving the bolt carrying bar to extend or withdrawn the bolts, a sliding locking plate provided with a lug normally registering with the notch in the bolt carrying bar to permit withdrawal of the bolts, a fusible chain suspended within the door, a grooved weight supported upon the chain, a rocker shaft journaled in the door, a rocker arm upon the shaft engaging the groove in the weight, and a second rocker arm upon the shaft engaging the sliding locking plate to automatically move the same and slide the lug thereon out of registration with the notch in the bolt carrying bar when the weight is released by the fusing or shattering of the fusible chain.

5. A safe or vault door provided with a bolt carrying bar, locking bolts carried thereby, means for moving the bolt carrying bar to extend or withdraw the bolts, a sliding locking member normally held out of engagement with the bolt carrying bar to permit withdrawal of the bolts, a fragile supporting member suspended within the door, a weight supported thereon, and a rocker arm operatively connecting the weight to the locking member to cause the same to be moved into engagement with the bolt carrying bar to prevent withdrawal of the bolts when the supporting member is separated by heat or explosion.

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