United States Patent

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[54] SAFETY DOOR LOCKING DEVICE

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 797,383, Feb. 4, 1969, abandoned.

[52] U.S. Cl. 70/212, 292/259

[51] Int. Cl. B60r 25/02, E05c 19/18

[58] Field of Search 292/262, 268, 259, 272, 260, 292/DIG. 36; 70/14, 89, 91, 95, 99, 100, 101, 135, 200, 211, 212; 287/60; 160/189; 49/197

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[57] ABSTRACT

Unauthorized operation of an exposed latch-operating lever for a door includes bars mounted on the interior of the door to support a pair of eye bolts having their eyes lying on the exterior side of the door. One eye swingably supports an obstruction member such as a turnbuckle and the other eye carries a lock which permits detachable retention of the opposite end of the obstruction member. The elements are positioned so that the obstruction member will prevent movement of the latch-operating lever to a door-releasing position.

15 Claims, 5 Drawing Figures

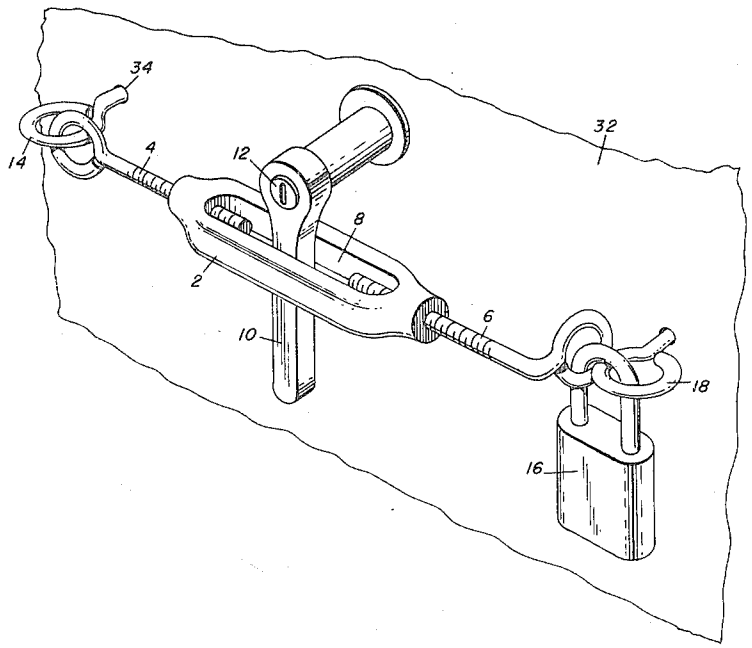
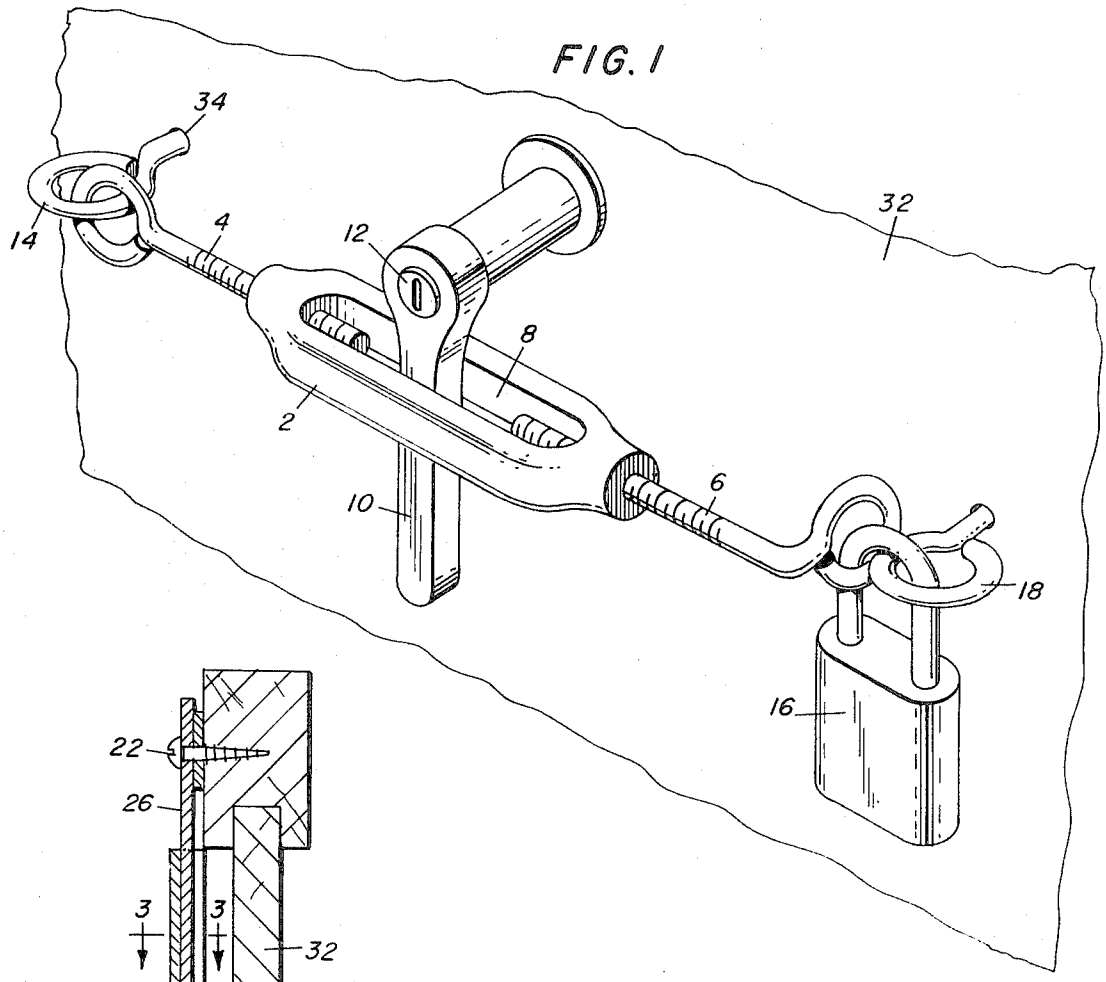


FIG. 1



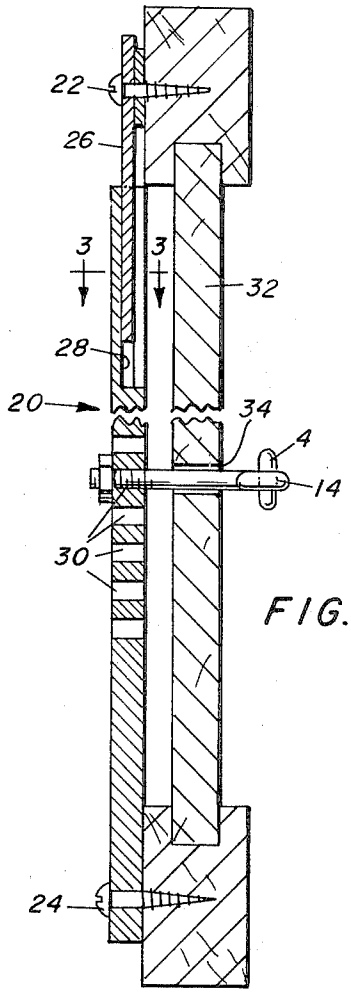


FIG. 2

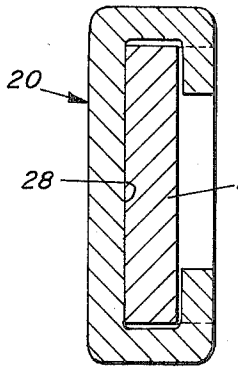


FIG. 3

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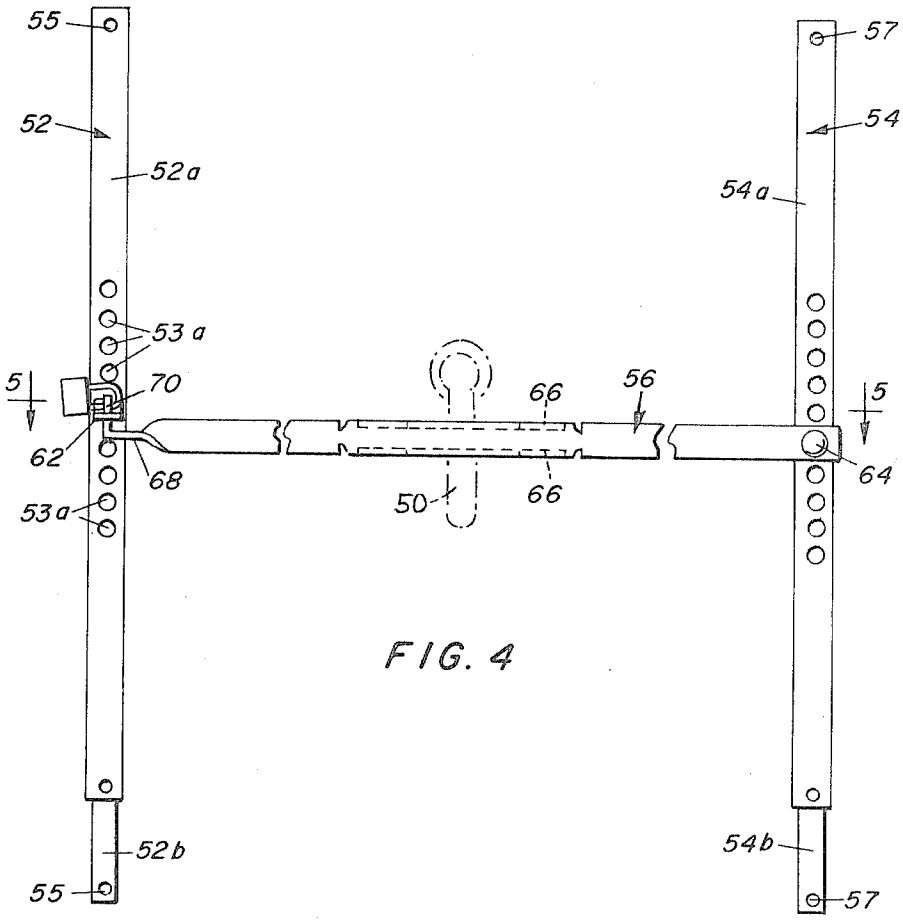

FIG. 4

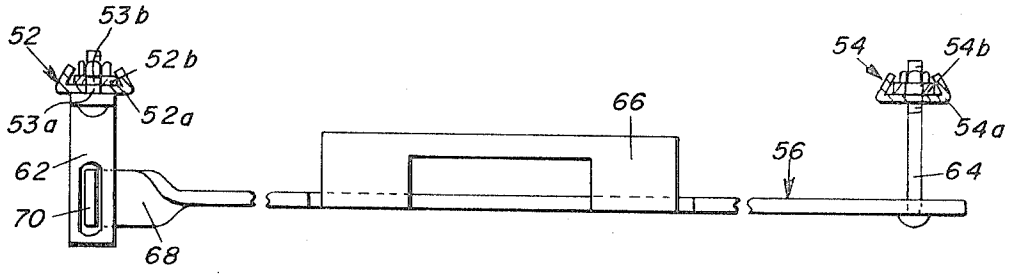

FIG. 5

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SAFETY DOOR LOCKING DEVICE

This is a continuation-in-part of my application, Ser. No. 797,383 filed Feb. 4, 1969, entitled Overhead Door Safety Lock, now abandoned.

This invention is suited, for example, for use in conjunction with overhead doors of the type often used for garages in residential and commercial buildings. These doors are made of a plurality of horizontally elongated panels which are hingedly interconnected for relative pivotal movement about horizontal axes. The individual door panels are made up of relatively strong peripheral frames supporting relatively weak central panel portions. The ends of the individual door panels are provided with rollers which lie in vertical trackways when the door is in its closed position and move through curved track sections into overhead horizontal track sections which support the rollers when the door is in its open position.

Doors of this type are conventionally locked in their closed position by a mechanism which includes a latch operating lever, a crank connected to the operating lever, and elongated latch elements which are pivotally connected to the crank and extend horizontally beyond the door edges into openings in the trackways. The exterior latch operating lever is usually of an L-shape or a T-shape and is provided with a tumbler lock. The interior side of the door has a similar lever which may be unlocked without a key or may be turned regardless of the locked or unlocked state of the exterior lever.

Experience has shown that unauthorized persons may easily gain access to buildings provided with doors of this type, simply by kicking out the relatively weak central panel portion of the door and reaching in to release the lock or the interior latch operating lever. Such unauthorized entry is prevented by adoption of the invention disclosed in this specification and in my aforementioned previously filed patent application.

The invention device is an obstruction member which is swingably supported on one side of the exterior latch operating lever and releasably and lockably retained in an operative position on the other side of the latch operating lever so that, when in its operative position, the obstruction member will prevent movement of the exterior latch operating lever to its door-releasing position. This also prevents unauthorized movement of the interior latch operating lever since the interior and exterior levers are interconnected.

According to one aspect of the invention, the obstruction member has threaded connections which permit adjustment of its location with respect to the support means and the retaining means. Another concept disclosed herein involves the use of mounting bars which are attached to the frame of the interior side of the door. Still another feature of the invention resides in the concept of providing a lever-receiving opening in the obstruction member.

While it is possible for my invention to assume various forms, a preferred embodiment thereof is found in the accompanying drawings wherein

FIG. 1 is a perspective view of a door in the vicinity of the latch-operating mechanism, showing the obstruction device of this invention in its operative position;

FIG. 2 is a sectional view through the door, showing one of the mounting bars used to connect this device to a door;

FIG. 3 is a sectional view of the mounting bar as seen along the line 3—3 in FIG. 2;

FIG. 4 is a front elevation of a modified form of the invention; and

FIG. 5 is a plan view of the modified apparatus as seen along line 5—5 in FIG. 4.

Referring to FIG. 1, it will be seen that the obstruction member is a turnbuckle 2 which includes a main body threadedly connected to the oppositely threaded eyebolts 4 and 6. The aperture 8 in the turnbuckle provides an opening through which the latch-operating lever 10 extends. The relative dimensions of the elements are such that the lever 10 is prevented from moving to a door-releasing position regardless of whether the key-operated tumbler lock 12 is in its locked or unlocked position.

The obstruction member 2 has its left end swingably supported by a support means in the form of an eyebolt 14 which is oriented in a horizontal plane. The swingable support may be a simple pivotal connection. The member 14 is supported in a fashion shown in FIG. 2 which will be described later in this specification.

The right end of the ever-obstructing member 2 is detachably retained by a padlock 16 and an eyebolt 18 which together engage and support the turnbuckle eyebolt 6.

Since the door panels are weak and may easily be kicked out, it is necessary to provide a special means for supporting the eyebolts 14 and 18. The preferred manner of support is shown in FIG. 2 where it will be seen that an elongated mounting bar assembly 20 is provided at its opposite ends with apertures which receive the fasteners 22 and 24. These fasteners are screwed into the relatively strong door frame members. The bar 20 has two portions, with the upper portion 26 being axially slidable in a guide portion 28 of the lower portion of the bar as seen best in FIG. 3. This permits adjustment of the total length of the bar 20 so that it may be attached to door panels having various widths which, in this case, is a vertical dimension.

The mounting bar 20 is provided with a plurality of interiorly threaded apertures 30, any of which are capable of supporting the threaded shank of the eyebolt 14. In order to prevent vibrational loosening of these elements, one or both of the interengaging threaded members should be burred in the fashion of a conventional locknut. A hole is drilled through the door panel 32 to provide an opening 34 through which the shank of the eyebolt 14 passes.

The disclosed apparatus is capable of numerous adjustments which enable it to be adapted to doors which have different dimensions and different types of latch-operating levers. For example, the threaded support of the eyebolts 14 and 18 permit rotation thereof to produce adjustments in the displacement between the door and the eyes of eyebolts 14 and 18 which serve as the obstruction-supporting and obstruction-retaining elements in the preferred embodiment. The threaded elements of the turnbuckle permit variations in the location of its opening 8 with respect to the obstruction supporting and retaining means.

Another device constructed according to the principles of the invention is shown in FIGS. 4 and 5. This device is preferably mounted on the interior side of a door where it will immobilize an interior latch releasing handle shown in broken lines at 50. As in the embodiment of FIGS. 1–3, the device includes mounting bars 52 and 54 which have adjustable lengths for the purpose of supporting and retaining an obstruction member 56 provided with a handle-receiving aperture 58.

In the device of FIGS. 4 and 5, each of the mounting bars is provided with mounting holes 55 and 57 at its opposite ends. Each mounting bar is formed of two elements, one of which is longitudinally slidable in the other in order to vary the overall length of the mounting bar. FIG. 5 shows the outer bar element 52*a* with inturned flanges which form a trackway or the longitudinally slidable inner bar element 52*b*. The longitudinal midportion of each of the elements 52*a* and 53*b* which are provided with a plurality of spaced-apart apertures 53*a* and 53*b* which are alignable with each other in order to receive the bolt 60 or other fastener used to support a bracket 62 which retains the obstruction member 56 in the manner described below. The elements 54*a* and 54*b* are similarly constructed to permit their adjustability and to enable them to receive the bolt 64 which serves as the obstruction-supporting member.

The bolt 64 passes through a circular hole on the obstruction member 56 to permit swingable movement of the obstruction member. Obstruction member 56 has its enlarged medial portion bent to form a pair of vertically aligned flanges 66 which are apertured at 58 to receive the handle of the door latching mechanism. The extreme end portion of obstruction member 56 is twisted 90° at 68 and then bent 90° to form the tongue 70 which is apertured to receive a padlock 72.

The obstruction-retaining bracket **62** is an L-bracket which has an elongated slot **74** provided in its horizontal leg for the purpose of receiving the tongue **70**.

The manner of installing and using the device of FIGS. **4** and **5** will be evident from the preceding description. The mounting bars **52** and **54** are slidably adjusted to a length where their respective mounting holes **55** and **57** will be aligned with the frame portion of the door. If desired, the bolts **60** and **64** may be inserted through aligned holes in the bars to set their length while screw fasteners are driven through holes **55** and **57** to attach the mounting bars to the door. Of course, the location of the bars **52** and **54** must be selected so the obstruction member **56** will have its aperture **58** alignable with the door handle **50** and the padlock-receiving tongue **70** will be able to enter the slot **74** in the obstruction-retaining bracket **62**.

When it is desired to use the device to immobilize the handle **50**, the obstruction member **56** is pivoted upwardly about the bolt **64** and maneuvered until the handle **50** passes through the aperture **58** and the tongue **70** is received by the slot **74**. The bail of the padlock **72** then is passed through the aperture in tongue **70** and the padlock is locked, thereby preventing unauthorized operation of the latch-operating handle **50**.

Of course, this invention is not limited to the sole embodiments and since there are many variations and modifications which fall within the spirit of the invention. Rather than using the padlock **16**, it is possible to provide some other locking mechanism which detachably engages an obstruction member. If the door has a latch-operating lever which is oriented horizontally rather than vertically, the obstruction member may be placed directly against its horizontal side to prevent unauthorized turning of the latch-operating lever. This may be done, for example, by using a turnbuckle with a plate welded to one side thereof. In instances where the door is sufficiently strong, use of the mounting bars **20** may be dispensed with.

Other modifications to the devices described herein will naturally occur to those skilled in the art and, accordingly, it is emphasized that the nature of the invention is not to be interpreted only from this specific description, but is to be construed by the terms and within the spirit of claims which follow.

I claim:

1. A safety locking device for doors having an exposed noncircular latch operating lever which is movable from a door-locking position to a door-releasing position, said device comprising,

an obstruction member having an opening therein and being movable to and from an operative position where the opening therein receives the operating lever to prevent movement of the lever to its door-releasing position,

support means swingably supporting the obstruction member on one side of the operating lever, said obstruction member being movable to an inoperative position where it is spaced from an does not interfere with movement of the latch operating lever, and lockable means for retaining the obstruction member in its operative position.

2. Apparatus according to claim **1** having a mounting bar for supporting the support means from a door, said mounting bar having at its opposite ends means alignable with a door frame to permit its connection to a door, said mounting bar having an adjustable length to permit its attachment to doors of different dimensions.

3. Apparatus according to claim **2** having means for adjusting the longitudinal location of the support means on the mounting bar.

4. Apparatus according to claim **2** wherein the means for retaining the obstruction member is located on the opposite side of the latch operating lever from the support means.

5. Apparatus according to claim **4** wherein the means for retaining the obstruction member is supported by a second mounting bar which has its opposite ends alignable with a door frame to permit its connection to a door, said second mounting bar having a adjustable length to permit its attachment to doors of different dimensions.

6. Apparatus according to claim **1** wherein the means for retaining the obstruction member is located on the opposite side of the latch operating lever from the support means.

7. Apparatus according to claim **6** wherein said obstruction member is a turnbuckle having threads of opposite hands for adjusting the location of the obstruction member with respect to the support means and the retaining means.

8. Apparatus according to claim **1** in combination with a door which has an operating lever for a door latch mechanism.

9. A safety locking device for having noncircular latch operating lever which is movable from a door-locking position to a door-releasing position, said device comprising,

an obstruction member having an operative position where it lies adjacent to the operating lever to prevent movement of the lever to its door-releasing position,

support means swingably supporting one end of the obstruction member on one side of the operating lever, said obstruction member being movable to an inoperative position where it is spaced from and does not interfere with movement of the latch operating lever, and detachable retaining means for supporting the other end of the obstruction member on the other side of the operating lever to hold the obstruction member in its operative position,

mounting bars for individually supporting the support means and the retaining means for the door, said mounting bars having at their opposite ends means alignable with a door frame to permit their connection to a door.

10. Apparatus according to claim **9** having means for adjusting the displacement of the support means and the retaining means from the door to permit alignment of the obstruction member and the operating lever.

11. Apparatus according to claim **9** wherein said obstruction member is a turnbuckle having threads of opposite hands for adjusting the location of the obstruction member with respect to the the support means and the retaining means.

12. Apparatus according to claim **9** in combination with a door which has an operating lever for a door latch mechanism.

13. Apparatus according to claim **9** having means for adjusting the longitudinal location of the support means and the retaining means on their respective bars.

14. Apparatus according to claim **9** wherein said obstruction member has an opening therein which receives the operating lever when the obstruction member is in its operative position.

15. Apparatus according to claim **14** having adjustment means for varying the location of the opening with respect to the support means and the retaining means.

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