

April 22, 1941.

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2,238,963

SAFETY LATCH

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Fig. 2.

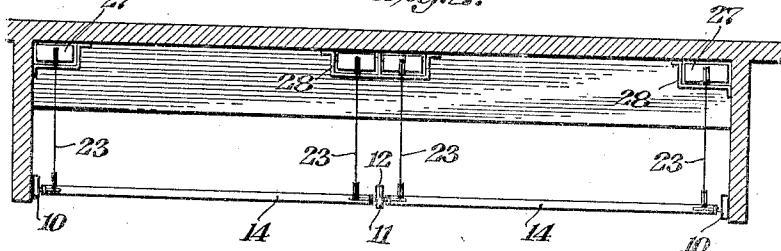
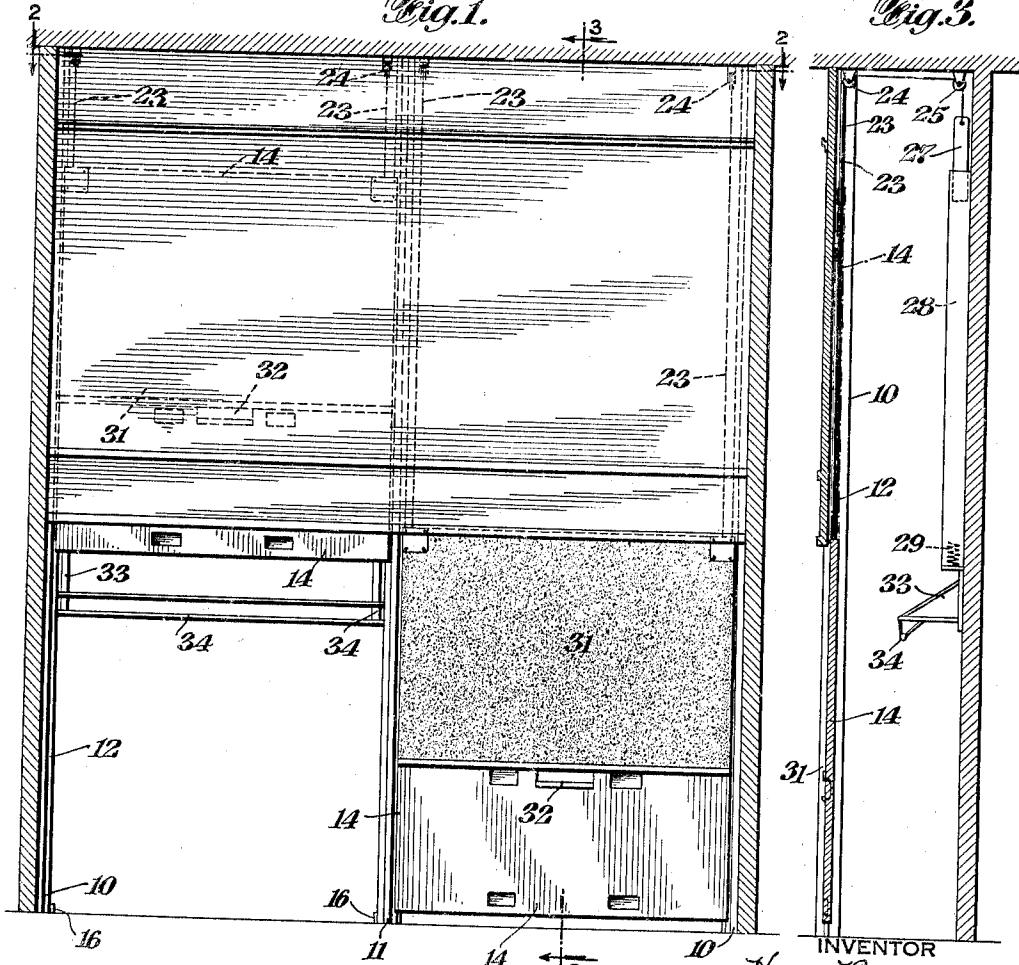


Fig. 1.



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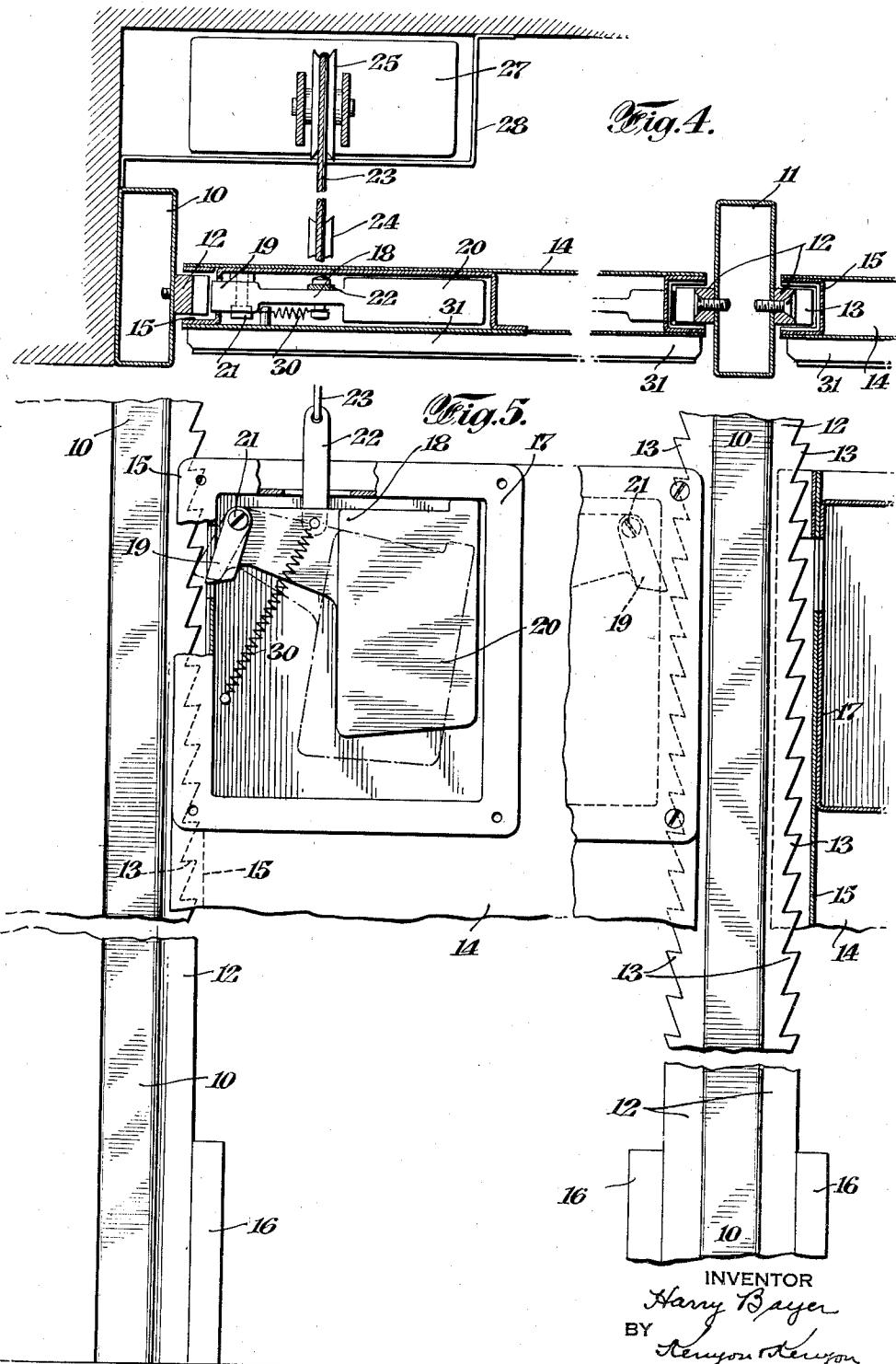
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UNITED STATES PATENT OFFICE

2,238,963

SAFETY LATCH

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Application March 10, 1939, Serial No. 260,923

2 Claims. (Cl. 20—19)

This invention relates to safety latches for vertically movable units such, for example, as doors, windows, partitions and the like.

In some school buildings, wardrobes are provided with vertically sliding counterweighted doors on the outer face of which are supported blackboards or other similar school equipment. During school hours, the doors are in lowered position to render the blackboards and other equipment accessible and are raised whenever it is desired to have access to the wardrobes. It is apparent that there must be provision for preventing the doors dropping by gravity in the event of failure of the counterweight.

An object of this invention is the provision for vertically sliding counterweighted units of latch means which will effectively prevent downward movement of such units under the influence of gravity in the event that the balancing effect of the counterweight is in any way destroyed.

Other objects, novel features and advantages of this invention will become apparent from the following specification and accompanying drawings, wherein:

Fig. 1 is a front elevation of a school wardrobe having vertically sliding counterweight doors equipped with latches embodying the invention;

Fig. 2 is a section substantially on the line 2—2 of Fig. 1;

Fig. 3 is a section substantially on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary enlarged section substantially on the line 2—2 of Fig. 1, and

Fig. 5 is a fragmentary large-scale elevation.

As shown in Figs. 1 to 3 inclusive, one wall of a school room is provided with a wardrobe constituting a recess in such wall and closed over its upper portion by a fixed partition and over its lower partition by a vertically slideable partition on which is mounted a blackboard or other suitable equipment, said slideable partition constituting the door for the wardrobe. The wardrobe may be equipped with one or more doors depending upon its size, but in the present drawings only two doors are shown.

At each end of the wardrobe is arranged a length of vertical steel tubing 10 and a similar length of tubing 11 is arranged midway between the other two. To the inner face of each tubing 10 is connected a guide bar 12 having ratchet teeth 13 formed in the upper half thereof. Two similar guide bars 12 are connected to the tubing 11. Between each pair of guide bars 12 is arranged a partition section or door 14 provided at each end with a channel member 15 in each of

which is received a guide bar 12. Stops 16 are provided at the lower ends of the guide bars 12 for engagement by the bottom end of the doors to limit the extent of downward movement thereof.

In each upper corner of each door is provided a housing 17 forming an integral part of the door. In each housing is provided a pivoted latch member 18 having a portion 19 constituting a pawl and a portion 20 constituting an actuating weight for the pawl. The member 18 is pivotally supported by the pin 21 and the housing 17, together with the channel member 15, is provided with an aperture through which the pawl 19 may swing into engagement with the ratchet teeth 13 to prevent downward movement of the door.

A link 22 is attached to the member 18 at such point that upward pull on the link swings the member 18 to disengage the pawl 19 from the ratchet teeth 13. From the link 22, a cable 23 extends upwardly and over pulleys 24 and 25 and is attached to a counterweight 27. A housing 28 is provided for enclosing and guiding the counterweight 27 and is provided at its bottom end with a shock-absorbing spring 29 for engagement by the weight 27. Normally, the pull of the counterweight exerted through the cable 23 and link 22 on the member 18 holds it in the full line position shown in Fig. 5, with the upper wall of the casing 10 acting as a stop to limit rotation of the member 18 under the influence of the counterweight. A spring 30 exerts tension on the member 18 tending to draw it into the dotted line position shown in Fig. 5.

The door or partition 14 is provided at its outer surface with a blackboard 31 and with a chalk trough 32 which may be also used as a handle for raising and lowering the partition. The weight of the blackboard, together with the weight of the door, makes it essential that positive acting latch means be provided for preventing dropping of the door 14 in the event that the cable 23 should break and release the door from the counterweight. The member 18 satisfies this requirement.

Normally, the member 18 is in the position shown in full lines in Fig. 5, it being held in such position by the counterweight 27. The member 18 remains in this position irrespective of upward and downward movement of the door so long as the cable 23 remains intact and in such position the pawl 19 is contained within the housing 17. However, in the event that the cable 23 breaks, the member 18 is immediately released to be swung by the gravitational effect of the

weighted portion 20 into position to project the pawl 19 into engagement with the ratchet teeth 15, thereby preventing downward movement of the door 14 under the influence of gravity. The spring 30 assists in swinging the member 18 into latching position, but is not absolutely essential. However, in order to make absolutely certain the operation of the latch member in the event of breakage of the cable 23, it is preferred to utilize the spring 30.

Within the wardrobe are provided brackets 33 which may be made of such shape as to provide a shelf. A clothes rack or the like 34 is supported by the brackets 23.

I claim:

1. In a wardrobe, a vertically slidable door, a guide for each vertical edge of the door having ratchet teeth, a housing at each upper corner of the door having a top aperture and a side aperture adjacent a guide, a ratchet member in each housing pivotally supported on a horizontal axis near the upper outer corner of said housing, a projection on said member adapted to extend through said side wall aperture into engagement with said ratchet teeth, said member having a body portion extending substantially the full width of said housing and constituting gravity means for swinging said member to locate said projection in position to engage said ratchet teeth, a link extending through said top aper-

ture and connected at its inner end to the body portion of said latch member, and a cable attached to the remaining end of said link, said latch member having its body portion engageable with the top of said housing to transmit pull from said cable to said door.

2. In a wardrobe, a vertically slidable door, a guide for each vertical edge of the door having ratchet teeth, a housing at each upper corner of the door having a top aperture and a side aperture adjacent a guide, a ratchet member in each housing pivotally supported on a horizontal axis near the upper outer corner of said housing, a projection on said member adapted to extend through said side wall aperture into engagement with said ratchet teeth, said member having a body portion extending substantially the full width of said housing and constituting gravity means for swinging said member to locate said projection in position to engage said ratchet teeth, resilient means tending to swing said member into position to engage said projection with said ratchet teeth, a link extending through said top aperture, and connected at its inner end to the body portion of said latch member, and a cable attached to the remaining end of said link, said latch member having its body portion engageable with the top of said housing to transmit pull from said cable to said door.

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