March 25, 1958 E. C. LOWE 2,827,983

LOCK

Filed June 21, 1955

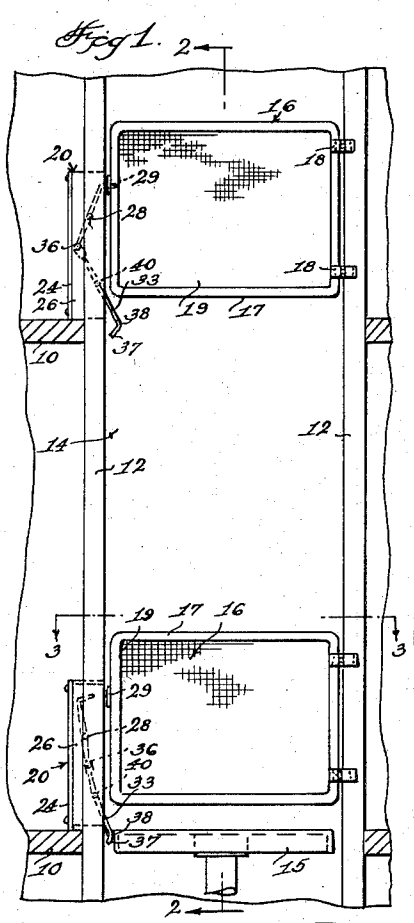


Fig. 1.

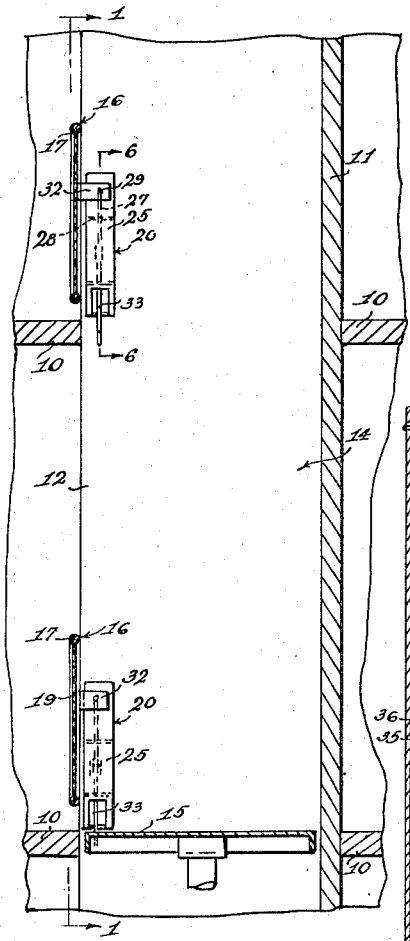


Fig. 2.

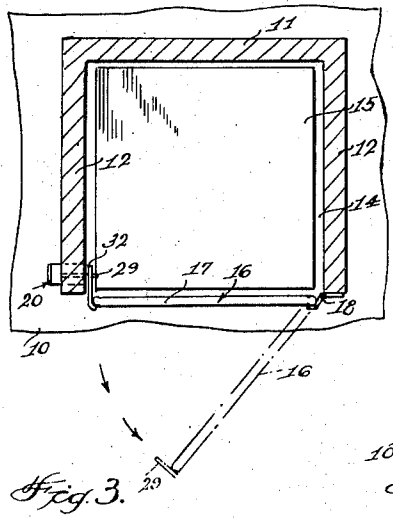


Fig. 3.

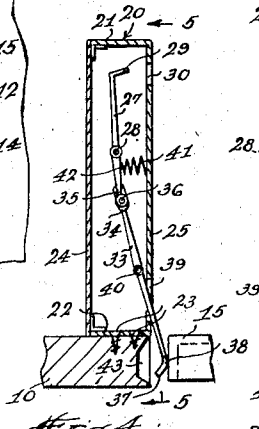


Fig. 4.

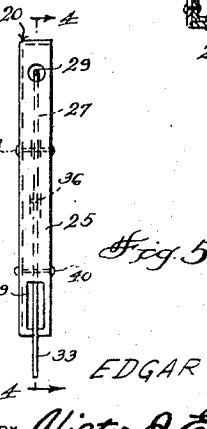


Fig. 5.

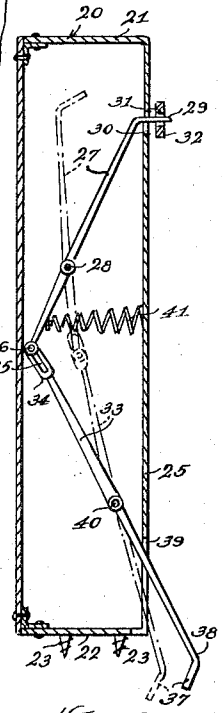


Fig. 6.

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United States Patent Office 2,827,983 Patented Mar. 25, 1958

2,827,983

LOCK

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Application June 21, 1955, Serial No. 516,960

1 Claim. (Cl. 187—61)

This invention relates to a lock, and more particularly to a lock for a door or gate of an elevator.

The object of the invention is to provide a lock which will maintain a gate or door of an elevator in locked position until the elevator or lift is contiguous to the gate.

Another object of the invention is to provide a safety gate lock for an elevator or lift whereby the gate of the elevator is automatically locked and unlocked as the lift moves up and down in the passageway.

A further object of the invention is to provide an elevator gate lock which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

Figure 1 is a sectional view taken on the line 1—1 of Figure 2.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a sectional view taken on the line 4—4 of Figure 5.

Figure 5 is a sectional view taken on the line 5—5 of Figure 4.

Figure 6 is an enlarged sectional view taken on the line 6—6 of Figure 2.

Referring in detail to the drawings, the numeral 10 designates each of the horizontally disposed spaced parallel floors which may form part of a building, factory, or the like, and extending between the floors are vertically disposed side walls 12 and a back wall 11, and the walls 11 and 12 coact to define therebetween a passageway or shaftway 14 which is adapted to have a vertically movable elevator or lift 15 travel therethrough. The elevator 15 can be moved up and down by any suitable mechanism.

Hingedly connected to one of the walls 12 are gates or doors 16 which each include a frame 17 that can be made of any suitable material such as metal, and each door 16 may further include a panel or closure member 19. The door 16 may be hingedly connected to the wall 12 by means of hinges 18.

The present invention is directed to a locking mechanism for maintaining the gates 16 in their closed position at the proper time. The locking mechanism includes housings 20 which may be made of any suitable material such as metal, and the housings 20 are hollow and include top sections 21 and bottom sections 22, Figure 6. Each housing 20 has the same construction and each further includes wall sections 24 and 25 and side sections 26. Pivotally mounted in each housing 20 is a lever 27, and the lever 27 is pivotally mounted on a pin 28, Fig. 6. Each of the levers 27 is provided with an angularly arranged portion or finger 29 that is mounted for movement through an opening 30 in the wall 25 of the housing. The finger 29 is also adapted to project through an opening 31 in a lug 32, and one of the lugs 32 may be secured, as by welding, to each of the frames 17 of the gates 16.

There is further pivotally mounted in each of the housings 20 by means of a pin 40, a link 33, and the upper end of each of the links 33 is provided with an enlarged portion 34 that has a slot 35 therein. A pin 36 extends through the slot 35 and pivotally connects the upper end of each link 33 to the lower end of a corresponding lever 27. The lower end of each link 33 is provided with an angularly arranged portion 37 which defines a shoulder 38 for a purpose to be later described, and a portion of the link 33 projects through a cutout or slot 39 in the housing 20, the links 33 being pivotally mounted in the housing by means of the pins 40. The housings 20 may be secured in place to the floors 10 by means of screws 23.

There is further provided a coil spring 41 which has one end arranged in engagement with a guide pin 42 which is secured to the lever 27, while the other end of the coil spring 41 abuts the wall section 25 of the housing 20. The floors 10 may be provided with recessed portions or cutaway portions 43, Figure 4, so as to receive the bent portions 37 of the links 33, when the links are being pivoted by engagement with the elevator 15.

From the foregoing, it is apparent that there has been provided a lock for a gate or door of an elevator whereby the gate 16 will be maintained locked until the locking mechanism is automatically actuated by means of the vertically movable elevator 15. In use, the elevator 15 moves vertically in the passageway 14, and the elevator 15 may be raised and lowered by any suitable mechanism. As shown in Figure 1, when the elevator 15 is in the position shown in Figure 1, a portion of the elevator 15 engages the shoulder 38 on the link 33 to thereby pivot the parts from the solid line position shown in Figure 6 to the broken line position of Figure 6. Thus, as the elevator 15 moves to the position adjacent to the shoulder 38, the link 33 is pivoted through the cutout 39 about the pin 40. As the link 33 pivots, the coil spring 41 is compressed and also the lever 27 is pivoted from the solid line position of Figure 6 to the broken line position of Figure 6 whereby the finger 29 is retracted from the opening 31 in the lug 32. The lug 32 is secured as by welding to the gate 16. As the finger 29 moves from the opening 31 through the opening 30, the gate 16 is free to swing on the hinges 18, and if desired a handle or knob can be provided for opening and closing the gate 16. It is to be noted from Figure 1 that when the elevator 15 is adjacent the lower floor 10, then the lock for the lower gate 16 is opened, but at the same time the lock for the upper gate 16 is closed or in locked position so that the upper gate 16 remains locked in its closed position while the lower gate 16 is free to pivot on the hinges 18. Thus, there is provided a safety lock which permits only the gate which is adjacent to the elevator, to be swung open and closed. Thus, there is no possibility of a person accidentally opening a gate and falling down the elevator shaft 14 since the gate only opens automatically when the elevator 15 is in a position to actuate the lock. As soon as the elevator 15 moves up or down away from the gate 16, the spring 41 will return the parts to the solid line position of Figure 6 so that the gate will again be locked.

I claim:

An elevator comprising vertically disposed back and side walls defining therebetween a vertically disposed passageway, a vertically movable lift arranged in said passageway, horizontally disposed spaced parallel floors, hingedly connected gates connected to one of said side

walls adjacent said floors, locking means for said gate actuated by said lift, said locking means comprising a lug secured to said gate and provided with an opening therein, a housing secured to a side wall adjacent said gate and each housing including spaced parallel top and bottom sections, spaced parallel end and side sections, a lever pivotally mounted in said housing and including an angularly arranged finger mounted for movement into and out of engagement with the opening in said lug, there being an opening in said housing for the projection therethrough of said lever, a link pivotally mounted in said housing and including an upper enlarged portion provided with a slot, a pin extending through said slot for pivotally connecting said link to the lower end of said lever, a portion of said link projecting through said housing and provided with a lower offset portion defining

a shoulder for engagement by said lift, a coil spring arranged in engagement with said lever, a guide pin secured to said lever and engaging said coil spring, the other end of said coil spring abutting the wall sections of the housing, a portion of said floor being provided with a recess for at times receiving the offset portion of said link when the link is pivoted by engagement with the lift.

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