Jan. 29, 1929. 1,700,557

H. CHERNIACK ET AL

LATCH CONTROL FOR SHAFT DOORS

Filed June 20, 1927

Fig. 1

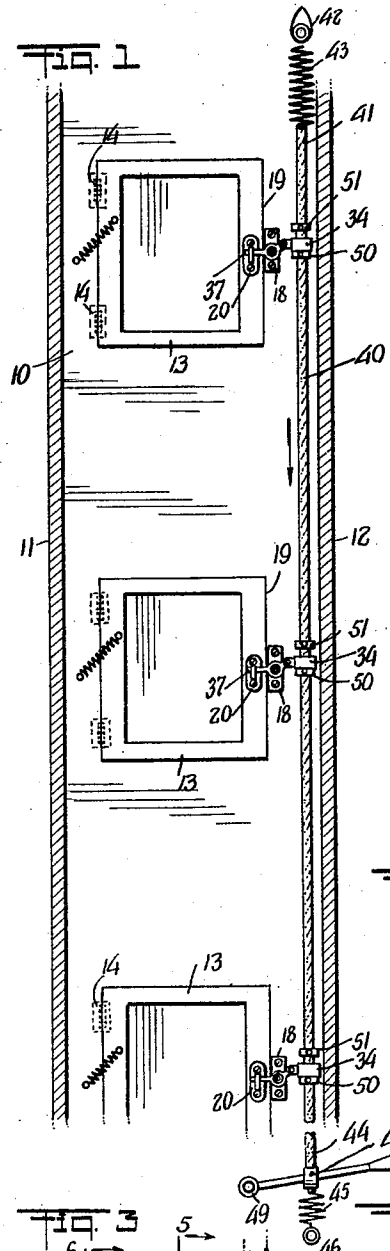


Fig. 2

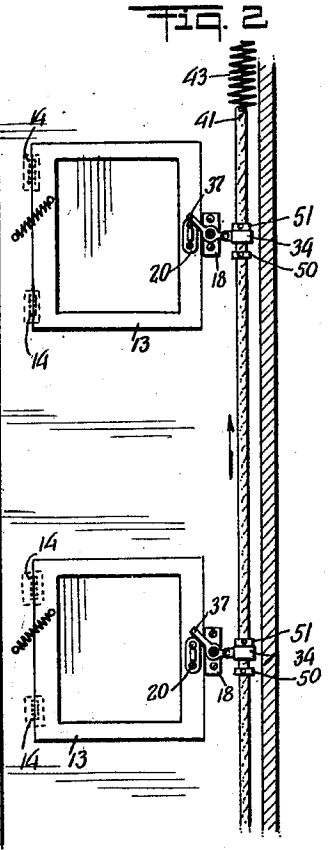


Fig. 5

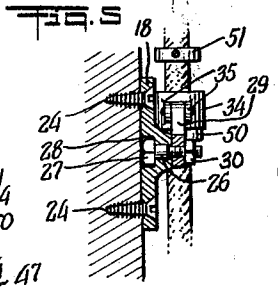


Fig. 6

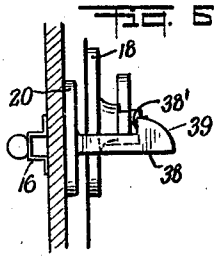


Fig. 3

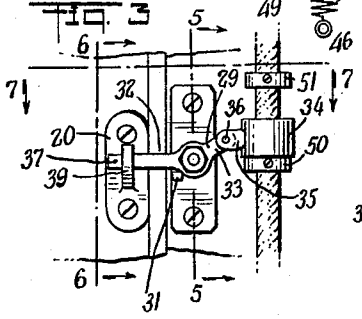


Fig. 4

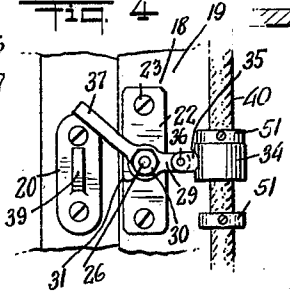
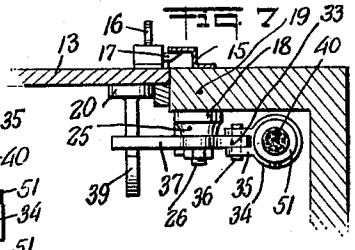


Fig. 7



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UNITED STATES PATENT OFFICE.

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LATCH CONTROL FOR SHAFT DOORS.

Application filed June 20, 1927. Serial No. 200,017.

This invention relates to a latch system for shaft doors, such as dumbwaiters. More particularly, our invention relates to a distant control for the latching and unlatching mechanism of doors leading to shafts of loading conveyors, such as elevators, dumbwaiters or the like.

Where we have provided loading conveyors leading to a plurality of floors in buildings through a connecting shaft whereby such conveyors, in the nature of elevators or dumbwaiters, may serve to be drawn to openings provided at each floor in the nature commonly termed "dumbwaiters" suitable for the delivery of merchandise, the collection of garbage and refuse at regularly appointed times or at signals given by the operator, positioned either in the basement or any other floor of the building, we have found that these devices have proven a source of considerable annoyance, danger and trouble by reason of offering to the tenant on each floor a means of disposing of refuse by simply dumping the same into the shaft. Such practice has led to an accumulation of rubbish, garbage and other refuse material at the bottom of the shaft, leading to an unhealthful condition, and also forming a fire hazard, due to a possible improper collection of material at the bottom of the shaft. Furthermore, where it is customarily practiced to cause delivery of merchandise or receptacles through dumbwaiters, there has been experienced either filching or improper removal of articles as they are delivered in the ascending or descending of the lift to various floors connected by a common shaft through the doors provided at each floor and leading to the common shaft. Furthermore, in the event of fire, a common connecting shaft normally serves as a flue for the spread of fire, if vents are provided, as may be occasioned by the opening of a door leading to a common shaft. Thus, the opening of a door in the case of fire may serve as a means to fan a controlled fire and cause spreading of the same to connecting floors.

An object, therefore, of our invention resides in the provision of a latch system for shaft doors, such as dumbwaiters or the like whereby individual control of the doors leading to the shaft may be had by a tenant at any predetermined floor only at definite periods of time when in the control of an operator positioned at the pit or top of the shaft; the invention contemplates the association of a door or a plurality thereof leading to a shaft with a fastening device controlled from within the shaft whereby an individual tenant may only open the same for the receipt or deposit of material within the shaft opening only when permitted to do so by an operator positioned at any predetermined point, as at the pit or top of the shaft.

The invention still further has for an object thereof the provision of doors of dumbwaiter shaft in combination with a latching and release mechanism for the doors leading to the dumbwaiter shafts controlled from within the shaft, permitting the opening of said doors only at the will of an operator whereby in the case of its use with dumbwaiters, as in apartment houses, the operator at the bottom of the pit may signal when the door leading to the dumbwaiter shaft may be opened by the tenant for the deposit into the dumbwaiter lift of rubbish, receptacles or the removal from the shaft of articles to be delivered, such as merchandise, or for the return of empty receptacles or the like.

The invention still further has for an object thereof the provision of a latch control for the doors leading to dumbwaiter shafts, the invention contemplating the provision of a latch or plurality thereof, in numbers corresponding to the floors connecting a common dumbwaiter shaft including a latch operable by a cable or rope, leading to a predetermined point in the shaft whereby at a given signal from the operator, the tenant at any predetermined floor may open the door leading to the shaft in the normal way. Thus, we provide a latch system for the doors leading to the shafts of dumbwaiters, holding the same closed unless, at the will of the operator, the latch is released to permit the deposit or removal of material into or from the lift provided in the dumbwaiter shaft.

Our invention still further contemplates the provision of a latch system for doors of dumbwaiters or the like which may be readily associated with dumbwaiters now used, which may be assembled with great facility and ease and one which is simple and inexpensive to manufacture.

To attain these objects and such further objects as may appear herein or be hereinafter pointed out, we make reference to the accompanying drawing forming a part hereof, in which—

Figure 1 is a side elevation showing a section of a dumbwaiter shaft, with out device serving to close a series of doors leading to a dumbwaiter shaft;

Figure 2 is a view similar to that shown in Figure 1 with the latch system in the open position;

Figure 3 is an enlarged side elevation showing the detail construction of the latch mechanism;

Figure 4 is a view similar to that shown in Figure 3 with the latch in the open position;

Figure 5 is a section taken on a line 5—5 of Figure 3;

Figure 6 is an end elevation taken on a line 6—6 of Figure 3;

Figure 7 is a section taken on a line 7—7 of Figure 3.

Making reference to the drawings, it will be observed that we have illustrated our invention as particularly adapted for use with a dumbwaiter shaft, such as now customarily used in connection with apartment houses for the delivery or collection of articles, such as the delivery of merchandise or the collection of garbage or similar refuse material. In the illustration shown, 10 is a dumbwaiter shaft viewed from the interior of the shaft, the section being taken along the length thereof across the side walls 11 and 12, disclosing the inner view of a plurality of doors 13, connected to the floors of the building, such as an apartment house or the like. These doors are provided with hinges 14, permitting inward pivotal movement only and prevented from movement into the shaft against the jamb or bead 15. It is preferred to provide the hinges 14 with suitable springs, insuring a self-closing action of the door upon the hinges. Interiorly of the apartment or floor of the tenant, we provide a customary latching device 16 adapted to engage a hasp 17. Thus, the door 13 may be opened inwardly by turning the knob of the locking device 16 to unlatch the door.

Interiorly of the shaft, we provide a latch system for the doors leading thereto and this, so far as each door is concerned, takes on the form of a latch 18 mounted upon the frame of the door 19, adapted to engage the plate strike 20 mounted upon the door upon the edge of the frame 21. In the construction shown, the latch 18 comprises a back plate 22 having suitable fastening orifices 23, through which may be passed the screw members 24. Preferably centrally of said plate 22 there is formed a boss 25, drilled to receive the bolt 26 therethrough, and holding the nut 27 thereof against turning within the opening 28 at the rear portion of the plate formed by the boss. The bolt 26 serves as a pivot for the bell crank shaped arm 29 and is held against removal therefrom by the nut 30. It will be observed that substantially free pivotal movement of the arm 29 is permitted upon the bolt 26 except for a counter clockwise movement which is prevented by the stop 31 formed in the path thereof. The bell crank shaped arm 29 is preferably provided with a short operating arm 32, the free end thereof 33 being formed to engage a loose ring 34, which is connected to said free end by the spaced lugs 35, formed on said loose ring and through which there is passed a pin 36, serving to connect the free end of the arm 33 and the ring in pivotal relationship. Opposite to the short operating arm, the bell crank arm 29 has formed a latch engaging arm 37, sufficiently long to extend past the door opening and engage the plate strike 20, formed with the upstanding dog 38 sufficiently long to dispose engagement beyond the frame jamb. This dog is provided at its extreme end with the camming surface 39, for purposes which will be apparent as this description proceeds.

Where the shaft has leading thereto a plurality of doors from several floors of an apartment house or similar building, it is preferred that the latch mechanism previously described be superimposed directly over each other at each floor so that the loose ring 34 may have passed therethrough the cable or rope 40. This cable is preferably suspended at its upper end 41 from the hook 42, interposing therebetween the resilient member in the form of a coiled spring 43. The lower end of the cable 44 is provided with a coiled spring 45, preferably attached adjacent the bottom or pit of the shaft at 46 and serves to hold the rope or cable substantially taut. A ring 47, attached to the end of the rope 44, has passed therethrough an operating lever 48, pivoted at 49 at some fixed plate on the wall adjacent the bottom or pit of the shaft. Thus, it will be observed that a downward pull of the operating lever 48 will serve to reciprocate the cable or rope against the tension of the springs 43 and 45. To each side of the free, removable ring 34 and attached to the rope there is provided ring stops 50 and 51. Thus, it will be observed that in upward reciprocation of the cable or rope 40, the ring stops 50 will serve to move the ring 34 upwardly, and this movement so imparted serves to carry with the ring the free end of the frame 33, imparting a pivotal movement to the bell crank arm 29 to the limit of its counter clockwise movement, as provided by the stop 31. A downward reciprocal movement of the rope 40 will serve to cause engagement of the ring stops 51 against the free ring 34, carrying this ring with it in the continued downward movement of the lever 48. This movement will serve to impart to the bell crank arm a clockwise movement. Thus, the cable or rope 40 may serve to move the bell crank arm 29 to the position shown in Figure 3, which is the closed position, or in Figure 4, which is the

open figure, merely by reciprocation of the operating handle 40.

It will further be observed that in the position shown in Figure 3 with the stop ring 50 disposed against the freely movable ring 34, the dog 50 may be forced against the resilient tension provided by the suspending springs 43 and 45, the camming surface 39 serving to bear it upwardly until the arm 37 falls against the shank of the dog 38 in back of the shoulder 39′. In this position it will be observed that inward pivotal movement of the door is prevented, thereby prohibiting any individual tenant from opening the door leading to the dumbwaiter shaft. Upon the receipt of suitable signalling from the operator at the bottom or pit of the shaft, the individual tenant will learn that the operator has released the latch by a downward reciprocal movement of the operating handle 48. Such downward movement will position the latch or latches, if there are a plurality connected by the cable 40, as shown in Figure 2.

Thus, we have provided a system of fastening a door leading to a shaft beyond the control of a tenant within the apartment except at the predetermined will of the operator who controls the lever 48.

The doors, where a plurality of them are operated, may be independently closed by the simple action of the spring actuating means, thus the operator may proceed from one floor to the other at a time when he has released the doors included in one group leading to the shaft, to the next floor without waiting for a tenant to attend to the closing operation of the door. Optionally, however, the operator may reciprocate the cable to close the latches as the lift is moved from one door to the other.

Having thus described our invention and illustrated its use, what we claim as new and desire to secure by Letters Patent, is—

1. A fastening system for shaft doors such as dumbwaiters or the like comprising individually operable swinging doors, fastening mechanism for said doors accessible only from within said shaft including a latch on the frames and a cooperating dog on said doors, a loose cable or rope engaging member on said latch and a cable or rope for said member operable from a distant point from said member, such as the bottom of said shaft whereby individual opening of said doors may be had by operation of said cable and whereby said doors may be closed independently of each other.

2. A fastening system for shaft doors such as dumbwaiters or the like comprising individually operable swinging, self-closing doors, fastening mechanism for said doors accessible only from within said shaft a cam-faced dog on said doors, a latch on the frames thereof and a resiliently urged and suspended, reciprocable cable or rope control for said latch operable from a distance such as the pit or bottom of said shaft whereby individual opening of said doors may be had by operation of said cable and the doors independently closed on movement of the same.

3. A fastening system for shaft doors such as dumbwaiters or the like comprising individually operable swinging doors, fastening mechanism for said doors accessible only from within said shaft including a latch on the frames and a cooperating dog on said doors, a loose ring on said latch, through which there is passed a cable or rope, stops on said cable or rope to each side of said ring, said cable or rope being operable from a distance such as the pit or bottom of said shaft whereby said doors may be individually and independently closed and opened.

4. In a fastening system for shaft doors, such as dumbwaiters or the like, shaft fastening mechanism for the doors thereof accessible from within said shaft, comprising a dog or strike plate and a cooperating latch, adapted to be mounted upon the door and frame respectively, said latch including a freely pivotal ring arranged to loosely encircle a rope or cable whereby independent movement may be had along said rope or cable.

In testimony whereof we have hereunto signed our names this 15th day of June, 1927.

HYMAN CHERNIACK.
SAMUEL BRANDFON.