

UNITED STATES PATENT OFFICE

2,543,643

TANDEM LOCKING DEVICE

Victor J. Ryan, Darby, and Arthur F. Pisacane,
Lansdowne, Pa., assignors to General Electric
Company, a corporation of New York

Application October 29, 1949, Serial No. 124,438

2 Claims. (Cl. 312—218)

1

Our invention relates to locking devices and, more particularly, to a device for the selective securing of a number of doors in a series of vertically hinged doors situated adjacently in a row.

Where a number of adjacent compartment doors are secured individually, the provision of the multiplicity of locks required may be unnecessarily expensive. Also, keeping readily available the corresponding keys necessary to operate the locks is inconvenient. The primary object of our invention is to provide a simple and inexpensive device by means of which any number, or all, of the doors in such a series may be secured by the use of but one lock, while the rest of the doors are individually controlled.

According to our invention, a door handle pivoted upon a shaft extending through the door of each compartment adjacent its closing edge is rotatable between an unlatched and a latched position. A link rigidly mounted upon the shaft inside the door is pivoted to a substantially vertical slidable latch, the end of which is below the top of the door when the handle is in unlatched position and extends above the door to be caught by the lintel when the handle is in latched position.

A restraining bar parallel with the lintel and spaced therefrom is mounted by means of elongated holes upon bearings rotatable upon pins projecting into the compartment from the lintel. The extended latch projects into the space between the bar and the lintel. The latch is provided with a pin perpendicular to its longitudinal axis adjacent its upper end. With the pin positioned so as to project towards the bar when the door is closed, a vertical portion of an L shaped slot in the restraining bar provides for vertical movement of the pin when the door handle is rotated to latched position. A horizontal portion of the slot communicates with the vertical portion. The restraining bar is movable horizontally between a free and a restraining position and when the door is latched and the bar is slid to the restraining position, the bottom of the horizontal portion of the slot engages the pin to restrain the latch from moving downward out of engagement with the bar, consequently preventing the door handle from unlatching the door.

Intermediate links connect the restraining bars of adjoining compartments to cause them to slide in tandem and a single lever pivoted upon the lintel of one compartment chosen as the master compartment and engaging a slot in the restraining bar of that compartment operates all of the restraining bars as a unit. The lever is provided

2

with a handle and is arranged to extend outward at an angle from the lintel of the master compartment in its free position and to extend flush with the lintel when in its restraining position.

5 The closing of the master door retains the handle in the latter position.

Provision is made to rotate each latch about its horizontal axis so that when the door is closed the pin thereof points towards or away from its corresponding bar. The bars restrain only those pins that are positioned pointing towards their corresponding bars so that the pins of the selected doors are so positioned, leaving the rest of the doors free to be locked individually. Since the lever is mounted inside the door of the master compartment, the pin of the master latch necessarily must be pointed away from the corresponding bar to allow the door to be individually locked. Locking of the master door secures in addition the selected doors of the remaining compartments.

A staple mounted upon each door adjacent the latched position of the handle allows the doors to be individually padlocked.

25 An object of our invention is to provide a locking device by which a single lock secures the doors of a series of compartments.

A further object of our invention is to provide a locking device to secure the doors of a series of compartments in which a padlock upon one of the doors also secures a selection of the other doors in the series.

35 A still further object of our invention is to provide a locking device to secure the doors of a series of compartments using a single operating handle.

For additional objects and advantages, and for a better understanding of the invention, attention is now directed to the following description and accompanying drawing, and also to the appended claims in which the features of the invention believed to be novel are particularly pointed out.

45 In the drawing, Fig. 1 is a fragmentary elevation view of a series of adjacent compartments having vertically-hinged doors; Fig. 2 is an enlarged partly-cut-away view of the restraining bar of a locking device of our invention mounted upon a lintel of a compartment; Fig. 3 is a detailed view taken on section line 3—3 of Fig. 1 looking in the direction of the arrows; Fig. 4 is a detailed sectional view taken on section line 4—4 of Fig. 1 looking in the direction of the arrows. Fig. 5 is a view of an alternate method

of adjusting the latch of the door chosen as the master door.

Referring to the drawing, compartment 1 is chosen as the master compartment in a series of adjacent compartments although any of the compartments might have been so chosen. Doors 2 are hinged at 3, having closing edges 4. A handle 5 shown in its latched position is mounted upon a pivotable shaft 6 protruding through each door and is rotatable to an unlatched position 7 indicated in dotted lines in Fig. 1. A staple 5A is mounted upon the door so that handle 5 can be locked in its latched position. A link 8 mounted upon the inside end of shaft 6 is pivotally connected to a latch 9 slidable in a support 10 secured to the inner face of door 2. When handle 5 is in unlatched position, latch 9 extends to a point slightly below the bottom of lintel 11 and when handle 5 is in latched position, latch 9 extends vertically above the door to be held by lintel 11, preventing the door from opening. A pin 12 projects from the surface of latch 9 adjacent its upper end and perpendicular to the longitudinal axis thereof. Latch 9 is adjustably mounted in a support 13, which is rotatably mounted on link 8, and locked in rotational position by nuts 14. Bar 15 is slidable between free and restraining positions upon pins 16 provided with bearings 17 mounted upon lintel 11 and projecting into horizontally elongated holes 18 in bar 15 so that in latched position, latch 9 extends between lintel 11 and bar 15. Bar 15 is provided with an L-shaped slot 19 having a vertical portion 19a which receives pin 12 upon its upward movement in response to rotation of handle 5 to the latched position. Slot 19 also has a horizontal portion 19b which receives pin 12 when handle 5 is in the latched position and bar 15 is in its restraining position as in Fig. 2, thereby preventing the unlatching of the door by handle 5. Links 20 connect bars 15 of adjacent compartments so that the bars slide in tandem. A lever 21 having a handle 21a perpendicular to an arm 21b is horizontally pivoted at 22 upon lintel 11 of the compartment chosen as the master compartment. Arm 21b projects within an opening 23 in bar 15 engaging the ends thereof so that when the handle is moved, the bars slide horizontally between free and restrained positions. Lever 21 is shown in its restraining position. The dot-dash outline shows lever 21 in its free position and the master door open.

To secure a selection of doors to be opened along with the chosen master door of the series, the latches of the selected doors are previously adjusted in supports 13 so that their pins 12 point toward corresponding bars 15. When the doors are latched and the lever 21 is put into its restraining position the selected doors are prevented from being unlatched by turning their handles and the remainder of the doors are left free to be latched separately. With the lever handle in restraining position, the master door can be latched and locked, thus locking the selected doors along with the master door.

For an alternate method of adjusting any of the compartments selected to be the master compartment, lever 21 is mounted upon lintel 11 of the chosen compartment. Support 10 is mounted onto door 2 by means of bolts 24 projecting through mounting holes 25 in support 10. On door 2 holes 25 are horizontally elongated to allow horizontal adjustment of latch pin 12 to either end of slot 19 when bar 15 is in restraining position. Support 10 of the chosen master

compartment is shifted horizontally so that pin 12 is at the end of slot 19 adjacent vertical portion 19a and supports 10 of the remainder of the doors are adjusted to the opposite end of slot 19 when bar 19 is in restraining position so that the master door is not restrained by bar 15 and the remainder of the doors are restrained by their bars 15.

While the present invention has been described by reference to particular embodiments thereof, it will be understood that numerous modifications may be made by those skilled in the art without actually departing from the invention. We, therefore, aim in the appended claims to cover all such equivalent variations as come within the true spirit and scope of the foregoing disclosure.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. In combination, a row of adjacent compartments having horizontal swinging doors and lintels above said doors, latches slidably mounted on the inside of said doors, said latches being rotatable about the longitudinal axes thereof, door handles mounted upon said doors and rotatable between latched and unlatched positions, said latches being operated by said door handles to extend below the top edges of said doors when said handle is in said unlatched position and to extend above said top edges when said handles are in said latched positions, said latches having pins mounted perpendicularly to said longitudinal axes and adjacent the top ends thereof, positioning means for rotating said latches about said longitudinal axes to position said pins in variable relation to said doors and restraining means comprising a plurality of bars mounted upon corresponding lintels for horizontal movement between free and restraining positions and provided with L-shaped slots having vertical portions to receive said pins when said handles are in said latched positions and horizontal portions to receive said pins when said bars are in said restraining positions thereby to prevent said selected doors from being unlatched, links mounted between adjacent ends of said bars so that said bars slide in tandem, and lever means pivoted within the compartment closed by a master door to slide said bars, the latch pin of said master door being rotated out of position to prevent engagement with the horizontal sliding bar when said bar is in restraining position, so that said master door can be individually locked.

2. In combination, a row of adjacent compartments having horizontal swinging doors and lintels having faces of horizontal portions thereof adjacent said doors in the closed positions thereof, latches slidably mounted on the inside of said doors, door handles pivotally mounted upon said doors to be rotatable between latched and unlatched positions and pivotally connected to ends of said latches, whereby said latches extend below said horizontal portions when said handles are in said unlatched positions and extend upwards adjacent the opposite faces of said horizontal portions thereby to restrain said doors in closed positions when said handles are in said latched positions, pins projecting from the free ends of said latches perpendicular to said longitudinal axis and adjacent the free ends thereof, means for rotating said latches about the longitudinal axes thereof to position said pins in variable relation to said doors, one of said compartments being selected to be the master compartment, and certain of said compartments being selected to be locked in latched position by the

5

closing of the door of said master compartment, the pins of said selected doors being disposed in perpendicular relation thereto and the pins of the remainder of said doors and of said master door being disposed in parallel relation thereto, restraining means comprising a plurality of serially connected bars respectively horizontally slidable upon said lintels between free and restraining positions and having horizontal portions projecting beneath the pins of said selected doors, when said doors are latched and said bars are in said restraining position, to prevent the unlatching of said selected doors by turning the handles thereof, lever means pivoted within said master compartment and pivotally connected to slide said locking unit, said lever means being

6

adapted to be locked in position corresponding to said restraining position by the closing of said master door.

VICTOR J. RYAN.
ARTHUR F. PISACANE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,109,364	Schoenfeld -----	Sept. 1, 1914
1,865,366	Fourchy -----	June 28, 1932
2,236,043	Tracy -----	Mar. 25, 1941