E. J. G. PHILLIPS.

MEANS FOR SUSPENDING SLIDING DOORS.

APPLICATION FILED MAY 22, 1916.

1,213,249.

Patented Jan. 23, 1917.

2 SHEETS—SHEET 1.

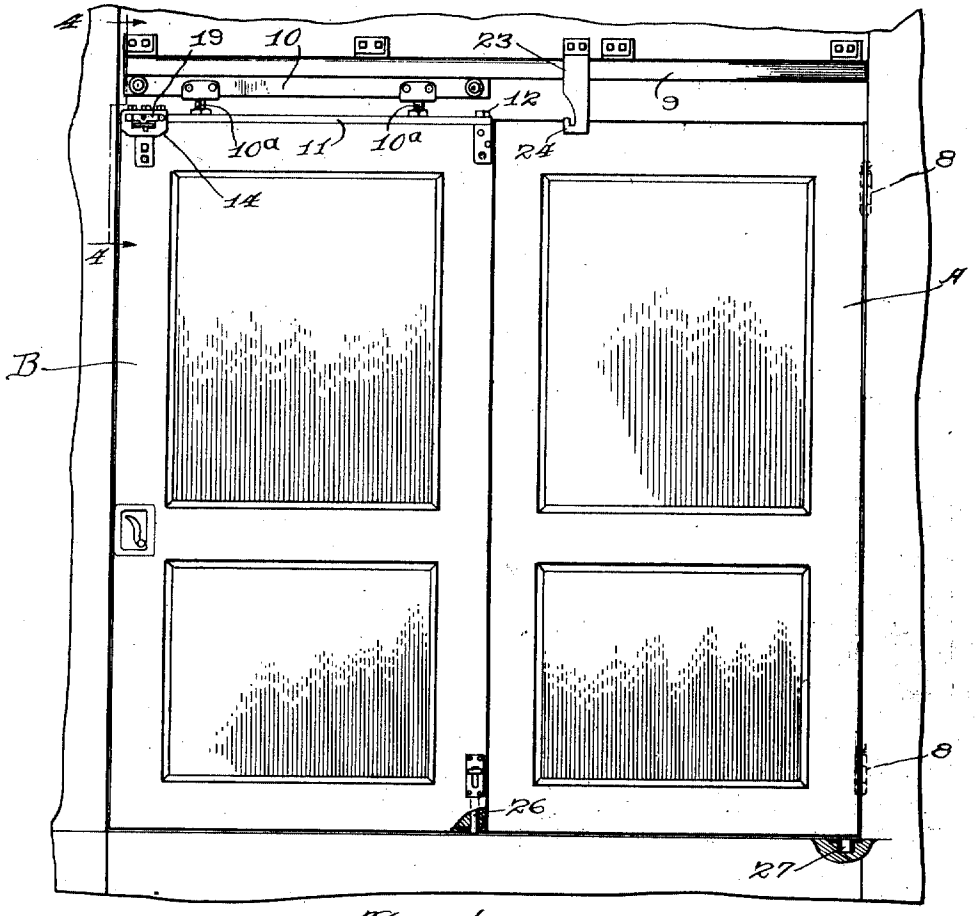


Fig. 1

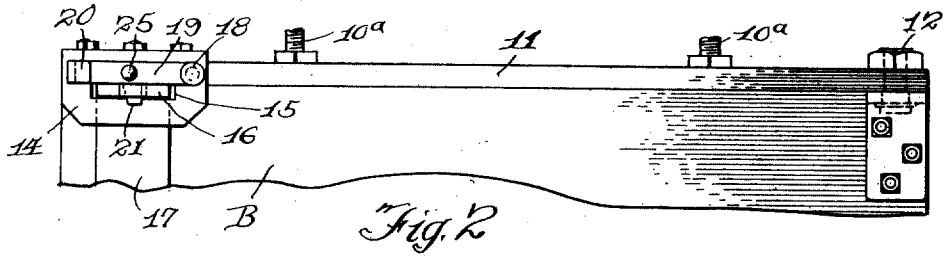


Fig. 2

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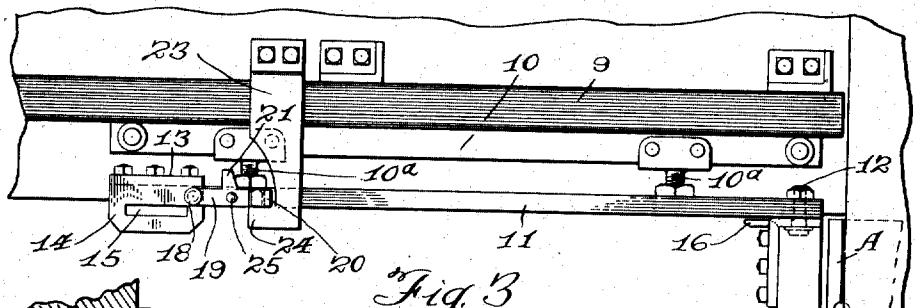


Fig. 3

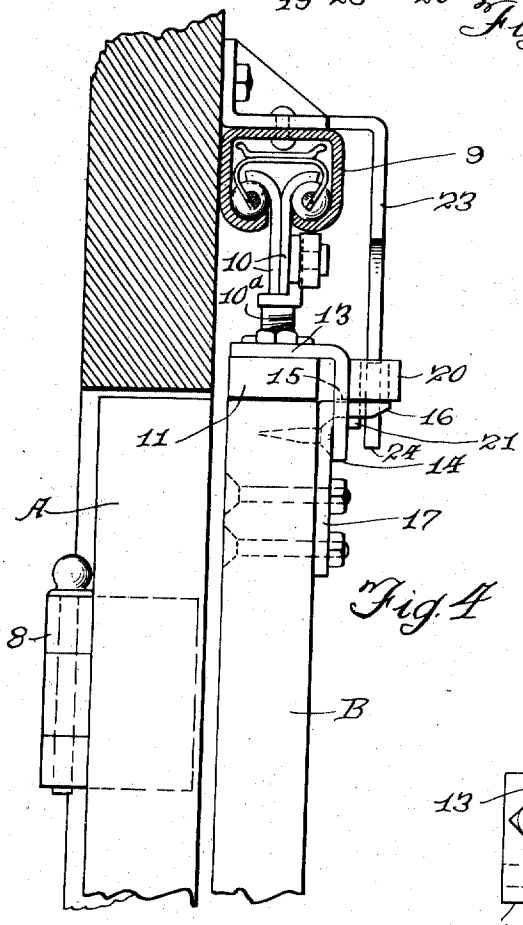


Fig. 4

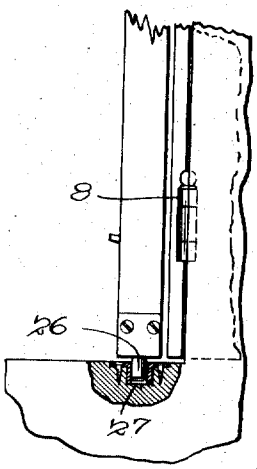
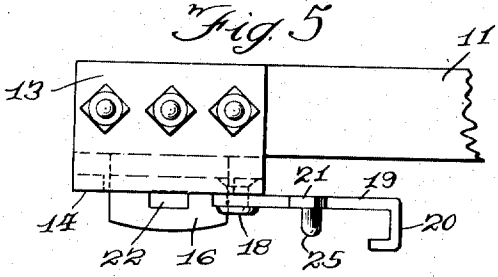


Fig. 5



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UNITED STATES PATENT OFFICE.

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MEANS FOR SUSPENDING SLIDING DOORS.

1,213,249. Specification of Letters Patent. **Patented Jan. 23, 1917.**

Application filed May 22, 1916. Serial No. 99,063.

To all whom it may concern:

Be it known that I, ELLIS J. G. PHILLIPS, a citizen of the United States, residing at Aurora, in the county of Kane, State of Illinois, have invented certain new and useful Improvements in Means for Suspending Sliding Doors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in means for suspending doors that are connected with trolleys or carriages movable upon an overhead track. In some situations, and particularly in connection with elevators in buildings, it is customary to have a wide doorway closed by two doors, one of which is hinged in any ordinary way to one of the side members of the frame of the doorway, and this door is ordinarily kept locked in closed position, while the other door is slidingly suspended and so arranged as to be moved past the normally-stationary door to permit entrance to and egress from the elevator. At times, however, it is necessary to make use of substantially the entire width of the doorway in order that large objects may be moved therethrough. It has been common practice to provide for so making use of the doorway by arranging a bar over the upper edge of the sliding door, pivoting such door near one of its edges to such bar, and detachably connecting the door at a point near its other edge to the bar—the bar itself having suitable connection with the attaching pendants depending from the trolleys or carriages. In such old constructions after the hinged door had been swung back out of the way and the sliding door moved to its extreme opened position a pivot-bolt in the bottom of the door would be projected into a socket in the floor that was in vertical alinement with the upper pivot. Then the door would be detached from said bar at that side opposite the pivotal connection. The door was then supposed to be swung on its upper and lower pivots. The trouble, however, with such constructions was that the overhead bar to which the door was pivotally attached would exert a sufficient pull on the trolleys or carriages to cause them to move, and, of course, move the bar also, so that the door would sag and touch the floor, thus making it necessary for the user to hold the door lifted clear of the floor while turning it on its pivots away from the doorway.

It is the object of my invention to provide a construction that will overcome the objection above noted. Briefly stated, I attain this object by providing a novel detachable connecting means between said overhead bar and the sliding door, one member of which (a latch in the form of construction shown) can be swung to permit of the disengagement of the door from the bar and which can then be caused to engage a fixed or stationary member so that the bar will be held rigidly during all of the time that the door is being turned on its pivots and indeed at all times when the door is swung away from the doorway. The particular construction and arrangement of parts by which this object is attained will be hereinafter particularly set forth, and that which I believe to be new will be pointed out in the claims.

In the drawings: Figure 1 is a front elevation of two doors in closed position and showing an embodiment of my invention; Fig. 2 is a front elevation of the upper part of the sliding door shown in Fig. 1, and showing my improved connecting means for detachably securing the door to the overhead bar that is connected to the pendants of the trolleys or carriages; Fig. 3 is a front elevation, showing the hinged door and the sliding door in fully opened position and the said overhead bar locked against any longitudinal movement that might otherwise occur from a slight movement of the trolleys or carriages attached thereto; Fig. 4 is an enlarged view partly in end elevation and partly in section, the section being taken at line 4—4 of Fig. 1. Fig. 5 is a detail, being a plan view of the means for detachably connecting one end of the overhead bar with the sliding door.

Referring to the several figures of the drawings in which corresponding parts are indicated by like reference characters, A and B indicate two doors employed for closing a doorway, such for example as an elevator doorway, A indicating the normally-stationary door, but which may be unlocked and turned on its hinges 8, and B indicating an ordinary sliding door which is adapted to be moved past the door A to admit of persons passing through the doorway. Secured

in any suitable manner above the doorway is a trolley-track 9 in or upon which run any well-known type of door-hanger trolleys or carriages. As shown in Fig. 4, the hanger is of that style employing two sets of anti-friction balls resting upon two parallel tracks, upon which balls bear the oppositely-curved upper ends of two plates that form the pendants attached to the upper edge of the door through the bar hereinafter referred to and adjusting screws 10^a that connect said bar with the hanger pendants. Any other form of track or carriages than here shown may, of course, be employed.

11 indicates a bar extending over the upper edge of the door B and connected therewith, pivotally at one end and detachably at the other end, and forming the means by which the pendants of the door-hangers are connected with the door. The pivot connecting one end of this bar with the door B is indicated by 12, and, as shown, is located close to that edge of the door that is adjacent to the door A when both doors are in closed position as in Fig. 1. For convenience the edge adjacent to this pivot may be termed the forward edge and the other edge the rear edge of the door.

13 and 14 indicate, respectively, the horizontal and vertical portions of a bracket, the horizontal portion being bolted to the upper surface of the bar 11 adjacent the rear edge of the door and the vertical portion depending opposite a face of the door, and, in the construction illustrated, removed a short distance from such face. (See Fig. 4). Through such depending portion 14 is a slot 15 of a size and shape adapted to receive a projection 16 extending out from the face of the door B. As shown such projection is formed by the turned end of a plate 17 bolted to the door. Near that edge of the bracket farthest removed from the adjacent edge of the door is pivoted at 18 a latch 19 having at its free end a hook 20 and on one edge a lug 21—the said edge being the lower edge when the latch is in position for locking the bar 11 and door B together. This lug 21 is adapted, when the parts are in the position shown in Fig. 1, to enter a slot 22 in the projection 16 carried by the door and thereby prevent the withdrawal of the said projection from the slot 15 in the bracket member 14, thus, of course, securely locking the door B against movement relative to the bar. 23 indicates a stationary arm bolted or otherwise secured to the wall in which the doorway is formed and located over such doorway and in such position as to be engaged by the latch 19 after the door B has been moved back on its track 9 to the fullest extent and after the latch has been turned completely over on its pivot, as seen in Figs. 3 and 5. To enable proper and secure engagement of the latch with the stationary arm 23, such arm has its lower end fashioned to form a hook 24 over which the bent or hook end 20 of the latch engages. 25 indicates a small handle piece on the latch by which the user can more easily manipulate it.

26 indicates a bolt carried by the door B and in vertical alinement with the pivot 12, said bolt 26 being held retracted out of operative position during the normal sliding operating of the door but adapted, when such door has been moved to the limit of its sliding position, to be projected into a socket 27 in the floor, and thereby, in connection with the other pivot 12 at the top of the door, permit such door to be turned away from the doorway after the door has been unlocked, by the turning back of the latch 19, from its engagement with the bar 11.

In use, with the parts arranged as in Fig. 1 the door B and attached parts will be moved back and forth in the usual way to open and cover that portion of the doorway guarded by it, the door being held rigidly locked to the overhead bar 11 by reason of the engagement of the lug 21 on the latch 19 with the projection 16 on the door, as before explained. While the door B is being so operated the door A will be held locked in closed position in any usual manner. Now, if it be desired to make use of the entire doorway space the door A will be unlocked and turned on its hinges 8 back out of the way, as in Fig. 3. The door B is then to be moved along on its track, and when brought to rest at the limit of such movement the cylindrical bolt 26 is to be projected into the floor-socket 27, which, as shown, is in vertical alinement with the pivot 12 that connects the door with one end of the bar 11. The latch 19 is then to be thrown back, as in Figs. 3 and 5 and its hook 20 will catch into and securely engage the hook 24 formed at the lower end of the stationary arm 23. The effect of such engagement of the latch with the stationary arm will be that as the door is turned on its pivots the projection 16 is withdrawn from engagement with the bracket member 14 so that the only supporting means for the door are the two pivots on which it turns. Without the engagement at this time of the latch 19 with the stationary arm 23 the weight of the door would tend to move the bar 11 longitudinally and allow the door to sag at its free end. With the latch so engaged, however, that tendency is wholly overcome and the pivot 12 retained in exact alinement with the lower pivot 26, and thereby the door is permitted to be swung easily out from the doorway.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The combination with a sliding door suspended from an overhead track, the suspending means including a bar lying over

and pivotally connected to the door near the forward edge thereof, of means for detachably connecting said bar to the door adjacent to the other edge thereof, an arm attached to a fixed support, and a device carried by said bar and adapted to have locking engagement with said arm when said door has been moved on its track to open position, said engagement of such device with the arm holding said bar against longitudinal movement when the door has been swung away from the doorway.

2. The combination with a sliding door suspended from an overhead track, the suspending means including a bar lying over and pivotally connected to the door near the forward edge thereof, of a pivot-bolt carried by the door and adapted to be projected into a floor-socket in vertical alinement with the pivotal connection of the door with said bar when the door has been moved on its track to open position, and means for maintaining the alinement of such pivots when the door is thereafter swung on its pivots away from the doorway.

3. The combination with a sliding door suspended from an overhead track, the suspending means including a bar lying over and pivotally connected to the door near the forward edge thereof, of interengaging means carried by the bar and the door for detachably connecting said bar and door together adjacent to the other edge of the door, a pivoted latch on the bar for locking said interengaging means together, and means adapted for engagement by the latch, after the door has been moved on its track to open position, for holding said bar against shifting longitudinally when the door is thereafter turned away from the doorway.

4. The combination with a sliding door suspended from an overhead track, the suspending means including a bar lying over and pivotally connected to the door near the forward edge thereof, of a bracket connected with the bar and having an opening in it, a projection on the door adapted to pass through said opening, a pivoted latch connected with the bar and adapted to engage the projection on the door to lock the bar to the door, and a stationary arm with which said latch is adapted to be engaged after the door has been moved on its track to open position, such engagement with the arm holding the said bar against longitudinal movement when the door is thereafter swung away from the doorway.

ELLIS J. G. PHILLIPS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."