Dec. 31, 1929. L. G. JACOBSON 1,741,940

ELEVATOR ENTRANCE INCLOSURE

Filed Aug. 1, 1928 2 Sheets-Sheet 1

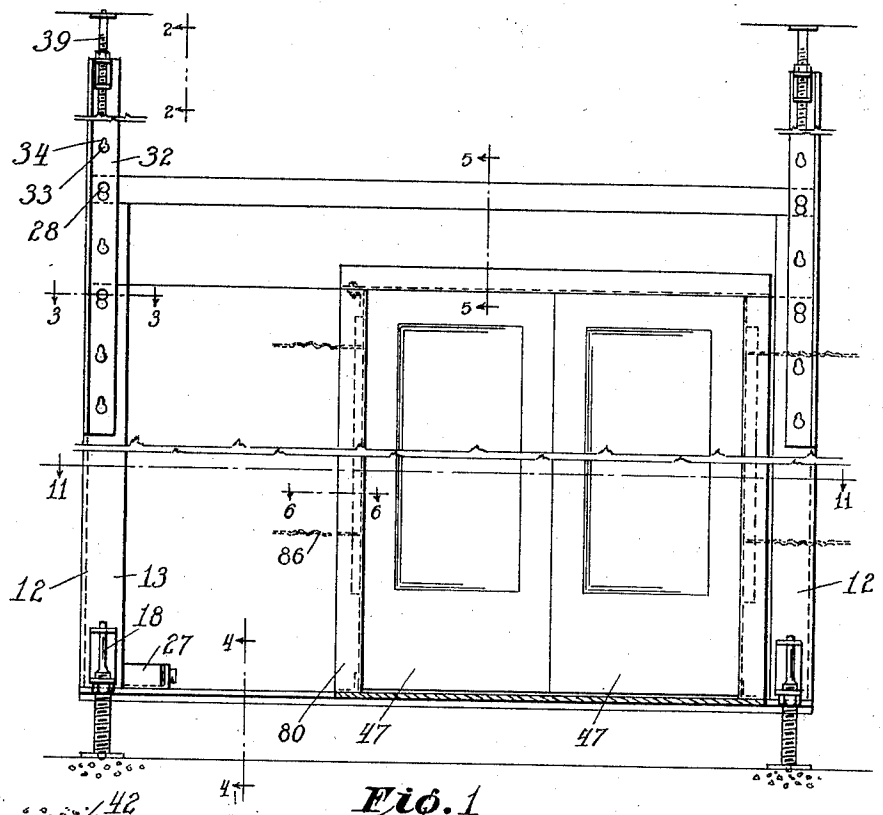


Fig. 1

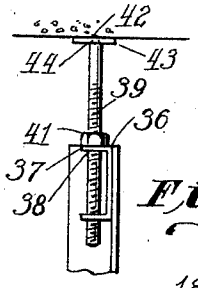


Fig. 2

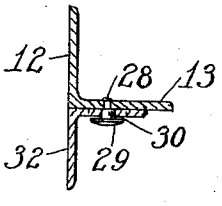


Fig. 3

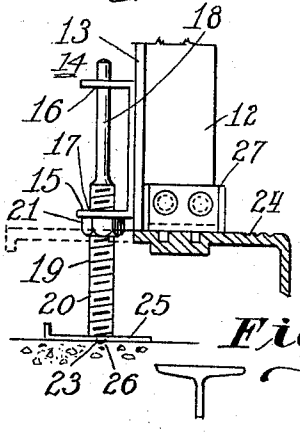


Fig. 4

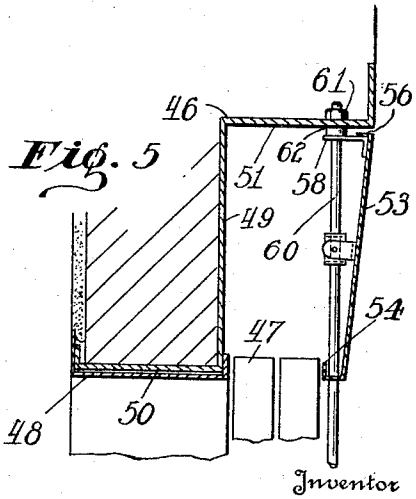


Fig. 5

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ELEVATOR ENTRANCE INCLOSURE

Filed Aug. 1, 1928 2 Sheets-Sheet 2

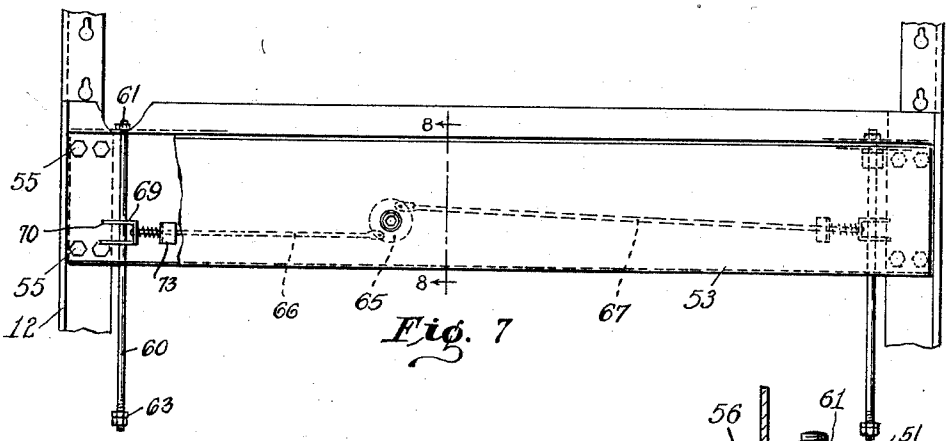


Fig. 7

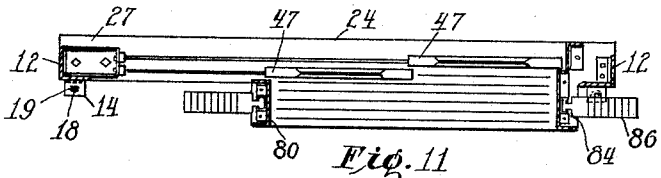


Fig. 11

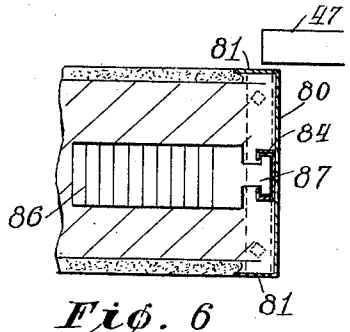


Fig. 6

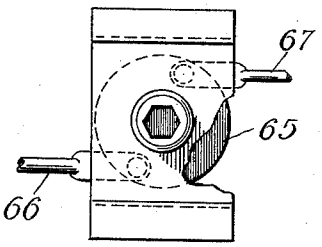


Fig. 9

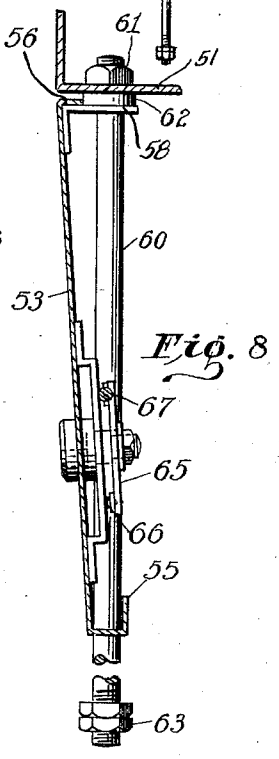


Fig. 8

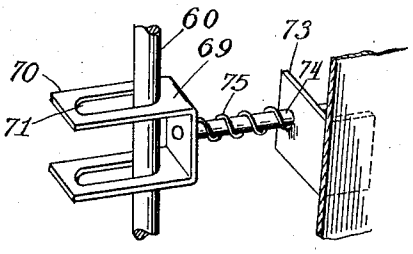


Fig. 10

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UNITED STATES PATENT OFFICE

LUDWIG G. JACOBSON, OF JAMESTOWN, NEW YORK, ASSIGNOR TO THE DAHLSTROM METALLIC DOOR COMPANY, OF JAMESTOWN, NEW YORK, A CORPORATION OF NEW YORK

ELEVATOR-ENTRANCE INCLOSURE

Application filed August 1, 1928. Serial No. 296,806.

This invention relates to an improvement in elevator entrance inclosures and more particularly to certain structural features thereof by which rapid assembly and adjustment are facilitated.

In its preferred embodiment this invention contemplates the provision of an elevator entrance inclosure, the assembly of which is greatly simplified through the use of various adjustable elements which form part of the structure.

The present trend of construction in elevator entrance inclosures and the consequent disadvantages thereof has been through the provision of a hanger cover plate, full and complete access to which might be had only from above or beneath the elevator cab. This and the inability to properly lever the strut members and saddle constitute acute structural and assembling disadvantages. In the specification below, applicant presents details of construction of an elevator entrance inclosure which, because of the many adjustable elements comprising it, provides an inclosure capable of being accurately fitted into any of various sized elevator shaft openings without the usually attendant difficulties of cutting down or adding to the structure to insure proper positioning.

The principal object of this invention is to provide an elevator entrance inclosure which may be quickly, accurately, and firmly located in an elevator shaft opening.

Another object of this invention is the provision of a vertically adjustable cover plate by reason of which access may be had to the elevator door hanger from within the elevator cab.

A further object of this invention is the provision of struts supported by vertically adjustable anchors.

A still further object of this invention is the provision of a header forming a combined lintel and hanger plate.

Another and further object of this invention is the provision of a saddle leveling device by which the entrance sill is raised or lowered into alignment with the floor.

Other and further objects of this invention will appear from a consideration of the following specification taken in connection with the accompanying drawings, and in which—

Fig. 1 is a front elevation of one form of this invention;

Fig. 2 is an enlarged fragmentary view of a portion of the structure shown in Fig. 1 as indicated by the line 2—2 thereon and illustrates the manner by which the struts are adjustably supported against the ceiling;

Fig. 3 is a fragmentary sectional view taken on the line 3—3 of Fig. 1 and illustrates the manner in which the strut angles may be adjusted;

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 1 and illustrates the saddle leveling means;

Fig. 5 is a sectional view of the head and hanger cover plate being taken on the line 5—5 of Fig. 1;

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 1 and illustrates the vertical adjustability of the wall anchors;

Fig. 7 is a front view of the vertically adjustable hanger cover plate and illustrates the means by which the plate may be moved to conceal or open to view the door hanger structure;

Fig. 8 is an enlarged sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is an enlarged fragmentary view illustrating the locking mechanism of the cover plate;

Fig. 10 is a fragmentary perspective view illustrating the manner by which the cover plate guide rods are engaged when the lock is operated; and

Fig. 11 is a horizontal sectional view, on a reduced scale, of the structure shown in Figure 1, being taken substantially on the line 11—11 of that figure.

Referring to the drawings and particularly to Fig. 1 thereof, this invention comprises an elevator entrance inclosure fitted to a shaft opening being supported upon a pair of spaced struts designated by the reference numeral 12. The struts are each aligned adjacent the wall defining the shaft opening and may be formed from L or channel shaped members. Secured to the face 13 of the

strut, preferably by welding, is a bracket 14, the horizontal flanges 15 of which are provided with centrally located concentric openings 16. The opening in the upper flange is of a lesser diameter than the opening in the lower flange, the purpose of which is to accommodate a shaft 18 which is provided with a shank 19 adapted to enter the opening 16 of the upper flange and an enlarged threaded portion 20 adapted to enter the opening in the lower flange. A nut 21 threadedly engages the portion 20 of the shaft and is the means by which said shaft is raised or lowered with relation to the bracket 14. The portion 20 terminates in a small end or tip 23. A plate 25, having an opening 26 therethrough substantially the diameter of the tip 23, is adapted to form a seat upon which the shaft 18 rests.

Attention is directed to the fact that the shaft 18 not only supports the struts 12 but is also adapted to provide means for leveling the sill 24. The sill or saddle as it is sometimes designated, is secured to the struts 12 and when the inclosure is in final position must be exactly the floor level. As often occurs during assembly, the sill 24 becomes tipped slightly to one side or the other and it is obvious that by lowering or raising either of the shafts 18, through the medium of the nuts 21, the sill 24 may be brought into absolute horizontal alignment with the floor. The brackets 27, by which the sill is secured to the struts, are each provided with a small recess into which a rubber or other yieldable bumper is inserted. These bumpers are held in place by means of the bolts or studs which secure the brackets 27 to each end of the sill 24. The brackets 27 are preferably welded to the struts 12 although it is obvious that other securing means might be employed.

Near the upper end of the strut 12, and extending outwardly from the face 13 thereof, are studs 28. The studs 28, of which there are two to each strut, are provided with enlarged heads 29 held in spaced relation to the face 13 by the shoulders 30 formed thereon (see Fig. 3). The studs 28 are permanently secured to the face 13 in any suitable manner as by heading over the inner end thereof against the face 13.

The adjustable strut angles 32, which form extensions of the struts 12, are provided with a plurality of uniformly spaced openings 33, each of these openings adjacent their upper edge being in communication with vertical slots 34. The opening 33 is of a diameter sufficient to permit the passage therethrough of the head 29 of the stud 28 and the slot 34 is of a diameter sufficient to permit the entrance therethrough of the shoulder 30. By reason of this structure, the strut angles 32 may be brought into engagement with the studs 28 through the openings 33 and as the struts are moved downwardly the shoulders 30 will enter the slots 34, the heads 29 preventing the removal of the strut angles from engagement with the struts 12. Inasmuch as there are a number of openings 33 provided in each strut angle, it is possible to greatly increase or decrease the height of elevator entrance supports in order that they may be accommodated to fit into any height shaft opening.

Secured, by welding or any other suitable means, to the upper end of the strut angle 32, is a bracket 36 provided with right angle flanges 37. The flanges 37 are each provided with concentrically drilled openings 38 through which a threaded shaft 39 is adapted to pass. A nut 41 threadedly engages the shaft 39 and is the means by which said shaft is made to move into or out of engagement with the bracket 36. The upper end of the shaft 39 terminates in a tip 42 which is of a lesser diameter than that of the shaft. A plate 43, having an opening 44 therethrough, engages the tip 42 and forms a ceiling support for the strut angle 32 through the shaft 39.

Attention is called to the fact that often there is great variance in the height of elevator entrances. That is to say, in one building the entrance may be nine feet high and in another building ten or twelve. In order to overcome the necessity of constructing entrance inclosure frame work to meet each particular need, the extendible strut angles and shafts 18 and 39 are provided. If it is found that the space to be inclosed is of a considerable size, the strut angle 32 may be moved upwardly to occupy a position such that the length of the strut will be almost doubled. Moving the strut angle upon the strut is the first and rough adjustment by which to accommodate the strut as a whole to a given space. The final adjustment, by which the strut is firmly located between the floor and ceiling, is made by turning the nuts 21 and 41 in a direction such that the shafts 18 and 39 will be extended toward the floor and ceiling.

Reference is now had particularly to Figs. 5, 7, and 8 wherein is shown the head jamb or housing 46 in which is located the hanger support (not shown) for the sliding doors 47. The head jamb 46 not only supports the hanger for the doors 47 but is also adapted to provide a lintel 48. The lintel 48 is formed integral with the vertical wall 49 of the head jamb and is provided with a reinforcing plate 50 by means of which the entire structural load above the door opening is supported. The wall 49 of the head jamb 46 terminates in a horizontal flange 51 to which is secured rods adapted to adjustably support a cover plate 53. The head jamb 46 adjacent the ends of the vertical wall 49 is secured by bolts 55 to struts 12. The lintel

48 is of a sufficient length to extend slightly over and beyond the door opening and is of a depth to correspond to the thickness of the average building wall.

In order that the door hanger may be readily accessible from the cab of the elevator the cover plate 53 is made vertically adjustable. This plate is provided with an inward and upwardly extending lower flange 54 having suitable openings therethrough. The upper horizontal edge of the plate is provided with an inwardly extending flange 56 to which is secured brackets 58. Suitable openings are provided in the brackets, said openings being concentrically disposed with relation to the openings in the flange 55. Rods 60, supported at their upper ends upon the flange 51 of the head jamb 46 by means of the nuts 61 and 62, are fitted with suitable nuts 63 adjacent their lower ends which act as stops to limit the downward travel of the cover plate 53. Slightly to one side of the center of the plate 53 and operably secured thereto is a locking device 65 comprising a disk mounted upon a key or handle controlled shaft. Rods 66 and 67 are pivotally mounted upon diametrically opposite sides of the face of the disk and as shown in Figs. 7 and 10 of the drawing, terminate in U shaped brackets 69. The flanges 70 of the brackets 69 are provided with horizontal slots 71 through which the rods 60 are adapted to pass. At each end of the cover plate 53 flanges 73 are secured, as by welding, having openings 74 therethrough which support the rods 66 and 67. Between the outer face of each flange 73 and bracket 69, springs 75 encircling each of the rods 66 and 67 are located. The frictional engagement of the brackets 69 upon the rods 60, caused by the expanding pressure of the springs 75, retains the cover plate 53 in any desired position. A suitable handle or key (not shown) is adapted to engage the shaft to which the disk is secured and upon turning said handle in a counter clockwise direction, the rod 66 and 67 will be drawn inwardly against the tension of the springs 75. The frictional engagement of the brackets 69 now being released, the cover plate 53 may be moved upwardly or downwardly upon the rods 60 to occupy any desired position. As soon as the handle is released the action of the springs 75 instantly force the brackets 69 into engagement with the rods 60 preventing any inadvertent movement of the cover plate 53.

The frame 80 which outlines the sliding door opening consists of a channel member having inner and outer flanges 81. This frame extends around three sides of the entrance opening being secured along its upper horizontal face to the lintel 48 in any suitable manner. Within the channel frame 80 and upon the vertical wall thereof, is secured by welding a small partially closed channel 84. Wall anchors 86 terminating in T shaped ends 87 are adapted to engage the channel member 84 and may be adjusted upwardly or downwardly within said channel. By reason of this structure, it is possible to begin laying the permanent wall which conceals the structural supports of the inclosure and as required, anchors may be dropped down into place, the portion 87 thereof being vertically guided within the channel 84.

By reason of the above improved structure for elevator inclosures, it is possible to provide struts 12, strut angles 32, and head jambs 46 with almost total disregard for the size of the entrance to be inclosed in as much as the height of the opening can be readily bridged through the use of the adjustable strut angles. Attention is also called to the fact that very often in elevator entrance inclosure assemblies great difficulty is encountered in adjusting and leveling the sliding doors. The hanger and track upon which these doors are supported must be readily accessible in order that quick adjustment or repairs may be made should the doors become out of order. The cover plate 53 being vertically removable and operable from within the elevator cab, greatly assists in the quick assembly or repair of the door hanger structure.

Although the cover plate, shown and described in this application, is provided with a view to simplifying manufacturing and assembling of an elevator entrance inclosure the added safety feature of its construction was also contemplated. It is well known by men acquainted with the assembly and repairs of elevator equipment that oftentimes a cover plate forming part of the inclosure on various floor levels must be removed in order to lubricate or adjust the sliding door mechanism and not infrequently these cover plates are forgotten and remain open. In a great majority of the present elevator entrance inclosures the cover plates are hinged to the inclosures and adapted to open outwardly into the shaft. As a result, when workmen fail to close the cover plate, a descending cab will cut the cover plate from off its hinges allowing it to drop in the shaft thereby endangering the lives of other workmen within the shaft or the lives of those in another cab. By comparison it may be noted that applicant's cover plate is not at any time, whether opened or closed, in a position in line with the path of the elevator cab and therefore whether or not the cover plate remains open is of little import in so far as the safety of the lives of the passengers or workmen is concerned.

While only one modification of each of the various structures which go to make up an elevator inclosure have been shown and described, applicant does not intend to be limited thereto since it is obvious that other

modifications or adaptations may be made without departing from the spirit and scope of this invention as set forth in the following claims.

Having thus set forth my invention what I claim is new and for which I desire protection by Letters Patent is:

1. An elevator entrance inclosure comprising vertically adjustable supporting members, a head jamb secured to said supporting members and a channeled frame secured to said head jamb and adapted to define the door opening.

2. An elevator entrance inclosure comprising vertically adjustable supporting struts, a head jamb having a lintel formed integral therewith secured to said struts and a channeled frame secured to said head jamb and adapted to define the door opening.

3. An elevator entrance inclosure comprising supporting struts, adjustable means for altering the height of said struts, a head jamb secured to said struts, a lintel formed integral with said head jamb, a frame joined to said lintel, a sill supported between said struts and means adapted to accurately align said sill with said frame.

4. An elevator entrance inclosure comprising supporting struts, adjustable means for altering the length of said struts, a head jamb secured to said struts, a vertically removable door hanger cover plate supported upon said head jamb and means accessible from within the elevator cab by which to open or close said cover plate.

5. An elevator entrance inclosure comprising supporting struts having means forming a part thereof adapted to alter the length of said struts, a head jamb secured to said struts, a lintel formed integral with said head jamb, a door hanger cover plate supported upon said head jamb and means accessible from within the elevator cab by which said cover plate may be moved to open or closed position.

6. An elevator entrance inclosure comprising supporting struts, means for altering the length of said struts, a head jamb secured to said struts, a reinforced lintel formed integral with said head jamb, a door hanger cover plate supported by said head jamb, means adapted to actuate said cover plate, a sill supported by said struts and means adapted to adjust said sill whereby it may be accurately aligned with the floor.

7. An elevator entrance inclosure comprising vertically extendible struts, a head jamb secured to said struts, a reinforced lintel formed integral with said head jamb, a door sill secured to said struts adjacent the lower ends thereof and means adapted to level said sill and to rigidly position said struts with relation to the floor and ceiling.

8. In an elevator entrance inclosure, a pair of struts having extendible and positioning means forming a part thereof, a head jamb supported upon said struts, a door sill secured to said struts adjacent the lower ends thereof and rods secured to said struts and adapted to level said door sill.

9. In an elevator entrance inclosure a pair of struts having extendible and positioning means forming a part thereof, a head jamb supported upon said struts, a door sill secured to said struts, door bumpers secured to said sill adjacent the ends thereof and adjustable rods upon said struts adapted to level said door sill.

10. In an elevator entrance inclosure, a pair of supporting struts having extendible members secured thereto, a head jamb secured to said struts, a removable door hanger cover plate suspended from said head jamb and means operable from within the elevator cab adapted to retain said cover plate in open or closed position.

11. In an elevator entrance inclosure, a pair of vertically extendible struts, a head jamb secured to said struts, a door hanger cover plate, rods secured to said head jamb and supporting said cover plate, means formed on said cover plate adapted to engage said rods whereby said cover plate may be retained in its open or closed position.

12. In an elevator entrance inclosure, a pair of vertically extendible struts, a head jamb supported upon said struts, a door hanger cover plate supported upon rods secured to said head jamb, a lever operated lock mechanism mounted upon said cover plate, said locking mechanism being provided with extendible and retractable arms having brackets engaging said cover plate supporting rods whereby said cover plate is accessible from within the elevator cab to be moved from closed to open position or open to closed position.

In testimony whereof I have affixed signature.

LUDWIG G. JACOBSON.