June 13, 1933. J. A. SCHWEIG 1,913,725

DUMB WAITER DOOR UNIT

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Fig. 2.

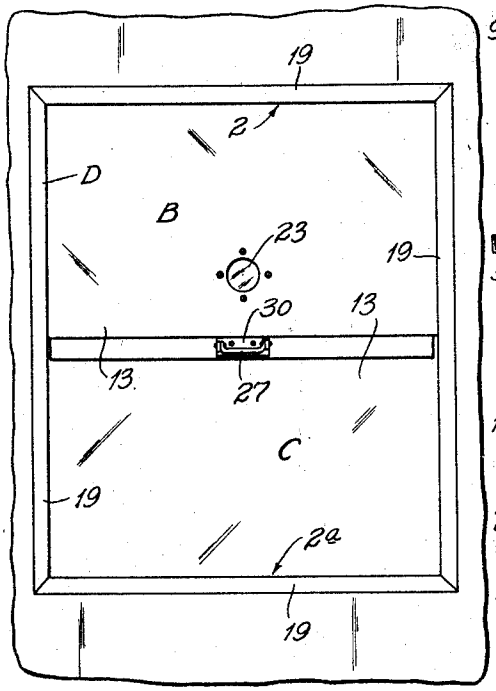


Fig. 1.

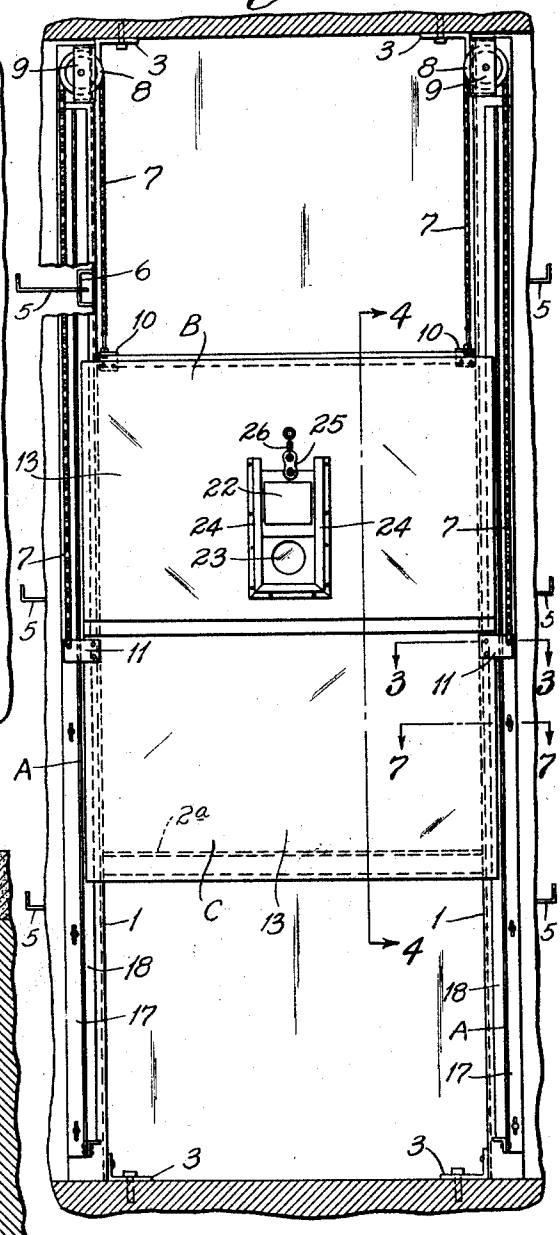
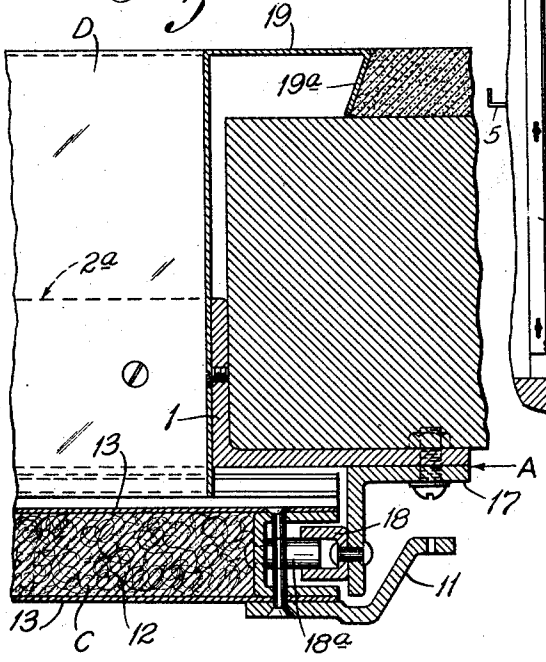


Fig. 3.



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June 13, 1933. J. A. SCHWEIG 1,913,725

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Fig. 4.

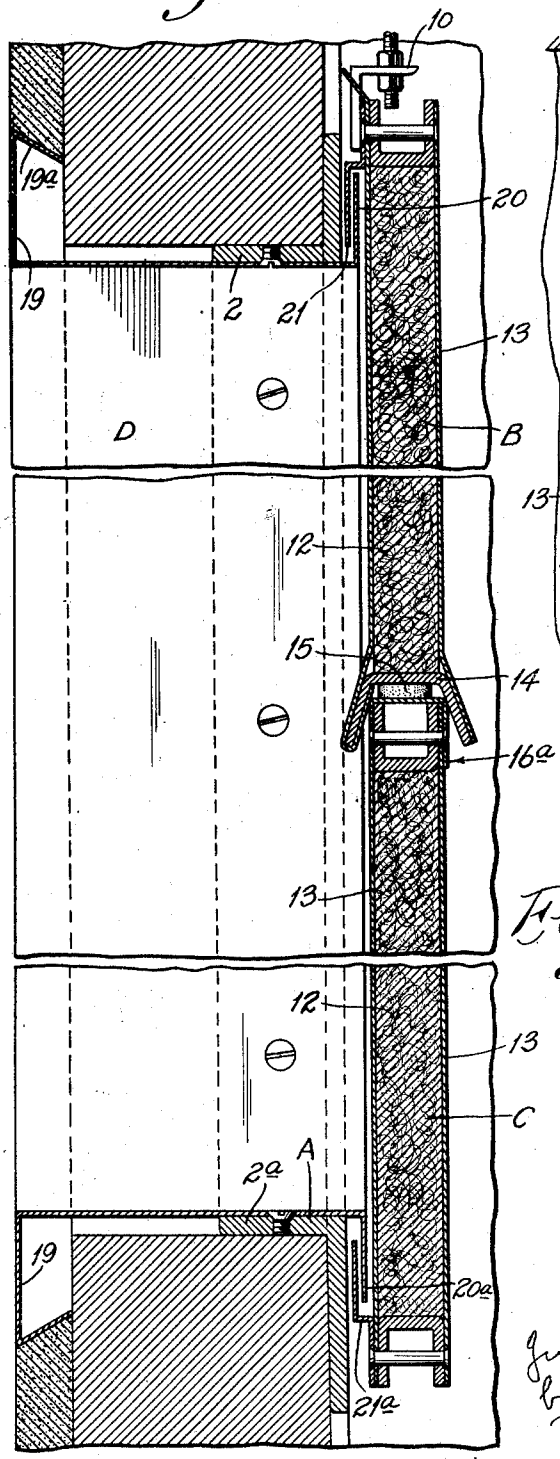


Fig. 5.

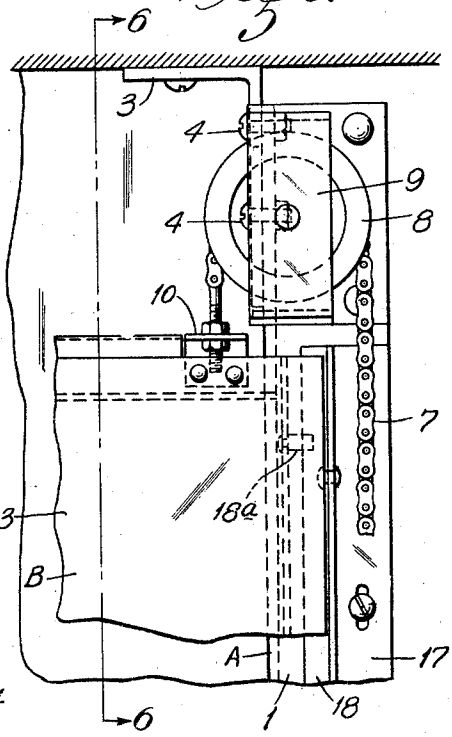
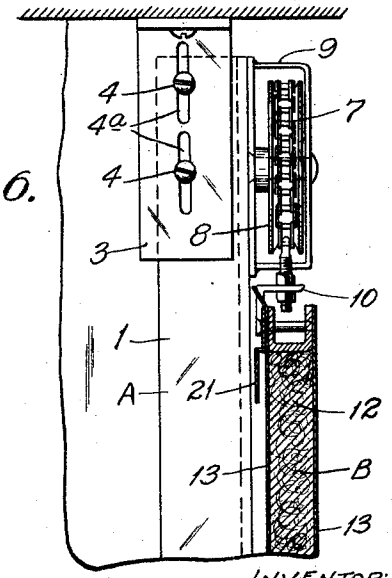


Fig. 6.



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Fig. 7.

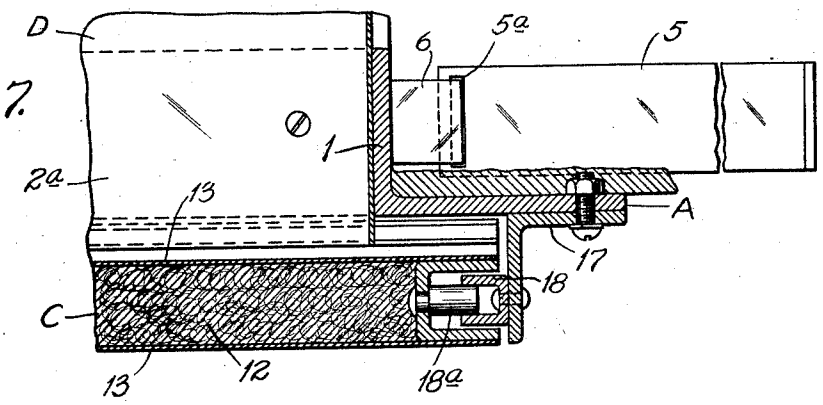


Fig. 8.

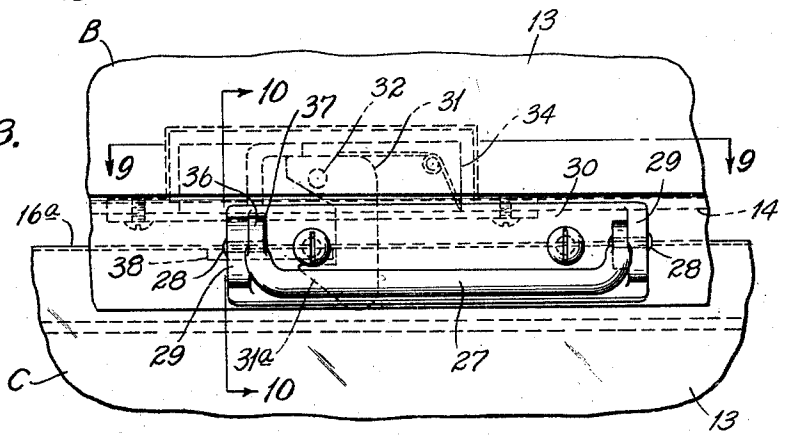


Fig. 9.

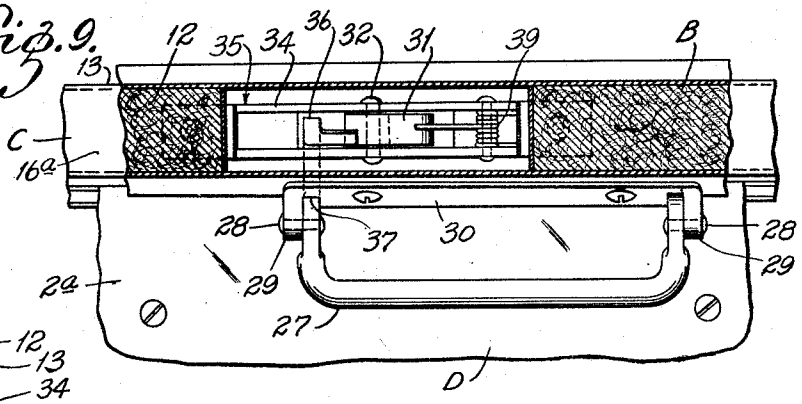
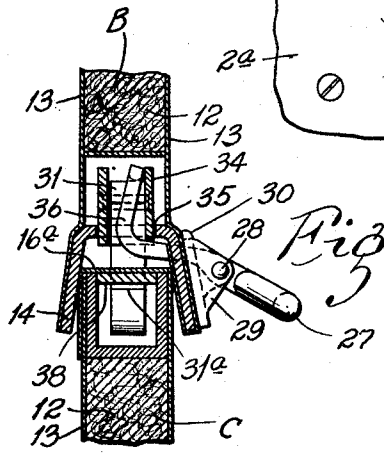


Fig. 10.



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Fig. 11.

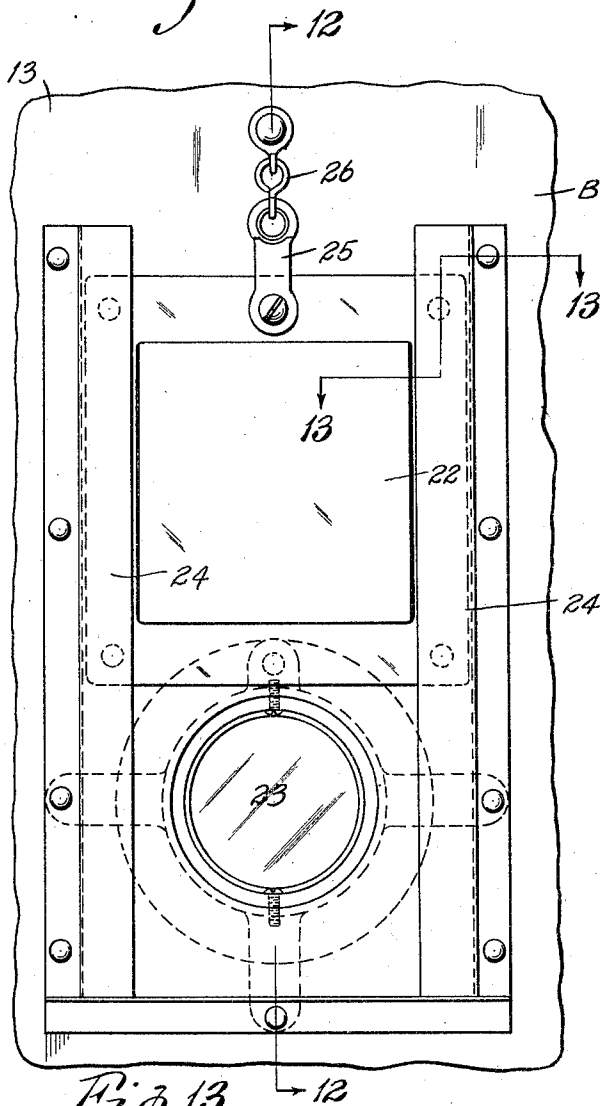


Fig. 12.

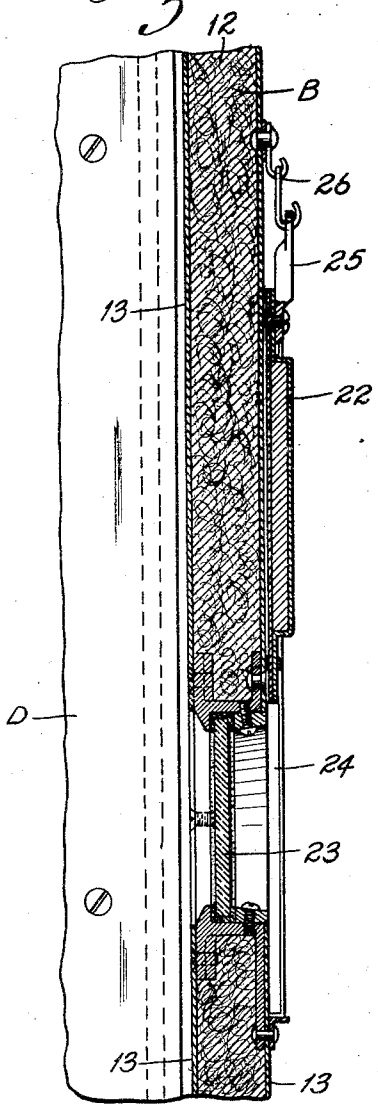
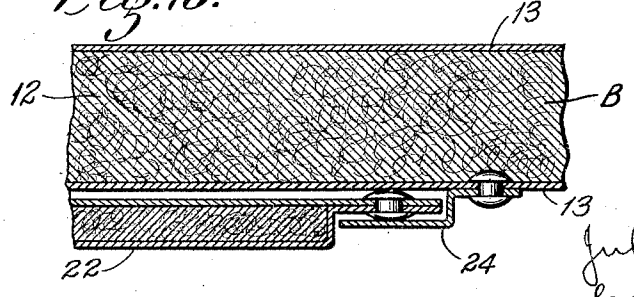


Fig. 13.



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Patented June 13, 1933

1,913,725

UNITED STATES PATENT OFFICE

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DUMB WAITER DOOR UNIT

Application filed June 4, 1931. Serial No. 542,008.

This invention relates to elevator doors, particularly dumbwaiter elevator doors of the kind that are assembled at the factory for shipment and installation as a complete unit.

The principal objects of the present invention are to produce a strong and durable fireproof dumbwaiter door unit of simple and compact construction which can be cheaply manufactured and easily installed; to provide a combination latch and operating handle for the door; and to provide the door with peep hole having a normally open shutter adapted to close automatically under the influence of heat. The invention consists in the dumbwaiter door unit, and in the construction, combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification and wherein like symbols refer to like parts wherever they occur,

Fig. 1 is a shaft side elevation of my dumbwaiter door unit,

Fig. 2 is a room side view thereof,

Fig. 3 is a horizontal cross-section on the line 3—3 in Fig. 1,

Fig. 4 is a vertical cross-section on the line 4—4 in Fig. 1,

Fig. 5 is a fragmentary view, from the shaft side, of one of the upper corner portions of the unit,

Fig. 6 is a vertical cross-section on the line 6—6 in Fig. 5,

Fig. 7 is a horizontal cross-section on the line 7—7 in Fig. 1,

Fig. 8 is a fragmentary room side elevation of the adjacent portions of the sliding door sections and the lock therefor,

Fig. 9 is a horizontal cross-section on the line 9—9 in Fig. 8,

Fig. 10 is a vertical cross-section on the line 10—10 in Fig. 8,

Fig. 11 is a shaft side elevation of the upper door section, showing the thermally controlled closure for the peep hole in the upper door section,

Fig. 12 is a vertical cross-section on the line 12—12 in Fig. 11; and

Fig. 13 is a horizontal cross-section on the line 13—13 in Fig. 11.

The present door construction is designed particularly for elevators of the dumbwaiter type and is adapted to be placed in position as a complete unit during the construction of the wall of the shaft so that it may be anchored in said wall to define the door opening therein. Said dumbwaiter door unit comprises an angle iron door frame A made up of jamb members in the form of two vertically disposed side angles 1 connected intermediate their ends by two vertically spaced horizontally disposed angles, one forming the lintel 2 and the other forming the sill 2*a* of the door frame. The side rails 1 of the frame A have angle brackets 3 secured to their upper and lower ends, for anchoring them in place. The upper brackets are preferably secured to the side rails of the door frame by horizontal bolts 4 that pass through vertical slots 4*a* which permit said brackets to be adjusted vertically. The door frame A may be further secured by anchors 5 that project horizontally from the side angles 1 and are adapted to be imbedded in the masonry adjacent thereto. Each of these wall anchors 5 is provided with an elongated vertical slot 5*a* adapted to receive the vertically disposed portion of a channel-shaped bracket 6, whose ends are welded or otherwise permanently secured to the vertical face of the side angle 1. By this arrangement, the wall anchors 5 are adapted to be adjusted vertically relative to the side angles 1 so that they may be brought into line with the mortar joints in the masonry wall.

The opening defined by the jamb, lintel and sill members of the door frame A is closed by means of a vertical sliding counterbalanced door comprising upper and lower sections or panels B and C, respectively. The upper and lower door sections are slidable in the same vertical plane and are hung on flexible members in the form of chains 7 that pass over sheaves 8 journaled in brackets 9 that are riveted or otherwise rigidly secured to the shaft side of the respective side angles of the door frame A near the upper ends of said members. One end of each door supporting chain 7 is connected by means of an angle bracket 10 to the adjacent upper corner of

the upper door section B; and the other end of said chain is connected to a bracket 11 that projects horizontally from the adjacent upper corner of the lower door section C. By this arrangement, one door section acts as a counterbalance for the other and the two sections move simultaneously towards and away from each other.

Each of said door sections comprises a rectangular frame having top, bottom and side rails of substantially channel-shape in cross-section arranged with the channels opening outwardly. The channel frame of each door section is filled with suitable insulating material 12 which is held in place by means of sheet metal cover plates 13 that are riveted or otherwise rigidly secured to the opposite sides of said frame. The room side cover plate of the lower door section has its upper marginal portion 16*a* bent horizontally over the top rail of the channel frame and thence downwardly over the upper edge of the shaft side cover plate. The bottom rail 14 of the upper door section B has its side flanges bent outwardly so as to straddle the top rail of the lower door section B when the door is closed. The bottom rail 14 of the upper door section is also provided with rubber bumpers 15 which, in the closed position of the door, abut against the portion 16*a* of the cover plate that covers the top rail of the lower door section and thus serves to cushion the shock when the door sections are brought together.

Guides are mounted vertically on the side angles 1 of the door frame A for directing the vertical travel of the upper and lower door sections. Each of said guides comprises a guide angle 17 that has one flange bolted or otherwise rigidly secured to the shaft side of the vertical side angle or jamb 1 of the door frame. The other flange of the guide angle 17 is located opposite the channels in the side edges of the two door sections and has a guide channel 18 riveted thereto that is straddled by said channels of said door sections, which channels are provided near their upper and lower ends with horizontally extending studs 18*a* that slidably engage said guide channel. By this arrangement, the two door sections are restrained from horizontal movement and are correctly guided in their vertical sliding movement.

Located within the door opening in the main frame A of the door unit is a rectangular sheet metal frame D which forms a lining or trim for the door opening. This sheet metal frame is screwed or otherwise rigidly secured to the head, sill and jamb members of a frame A and is provided on its room side with an outwardly extending flange 19 that overlaps the room side face of the wall of the shaft and terminates at its outer edge in an inwardly bent flange 19*a* which determines the thickness of the plaster finish on said face of said wall. On the shaft side of the sheet metal frame D, the head and sill portions thereof are provided respectively with an upstanding flange 20 and a depending flange 20*a*, each flange extending between and being spaced from the shaft side of the door frame and the room side of the door sections. Rigidly secured to the room side face of the upper door section B along the upper edge thereof is a sheet metal flashing member 21 having a depending flange adapted, in the closed position of the door, to overlap the upstanding shaft side flange 20 on the shaft side margin of the head portion of the door trim. The flashing 21 is also provided along its upper edge with an inclined flange portion which terminates adjacent to the shaft side of the wall and thus prevents dirt or plaster from falling between the wall and the door sections. A similar flashing member 21*a* is secured to the room side of the lower door section along the lower edge thereof and has an upstanding flange that extends between the shaft side flange 20*a* of the sill portion of the door trim in the closed position of said door section.

The upper door section B is provided on the shaft side thereof with a vertically slidably thermally controlled shutter 22 for closing a glazed peep hole 23 in said section. As shown in the drawings, the shutter 22 is slidably supported in vertical guides 24 rigidly secured to the room side of the upper door section and is normally held in its opened or raised position by means of a fusible link 25, one end of which is secured to said shutter and the other end of which is secured to a chain 26 that is fastened to said door section. The link 25 is fusible at a comparatively low temperature and operates under the influences of heat to release the shutter and allow it to close automatically in case of fire.

The two door sections are automatically locked together when the door is closed by means of a gravity latch mechanism which is manually released by a door operating handle 27 mounted on the room side of the upper door section B. The door operating and latch releasing handle 27 comprises a horizontal bar whose ends are pivotally secured by means of horizontal pivots 28 to outstanding lugs 29 provided therefor at the ends of a plate 30 that is screwed or otherwise rigidly secured to the room side of the upper door section near the lower edge thereof. The latch mechanism comprises a latch lever 31 that is pivotally supported, as at 32, for vertically swinging movement in a supporting bracket 34, mounted in an opening 35 provided therefor in the web of the downwardly opening bottom channel of the upper door section. One arm of the latch lever extends horizontally beneath the free end of an arm 36 that projects from one end of the operating handle 27 through an opening 37

provided therefor in the room side of the upper door section. The other arm of the latch lever projects downwardly and terminates at its lower end in a hooked portion 31*a* adapted, in the closed position of the door, to swing beneath a plate 38 secured to the top rail of the upper door section. A torsion spring 39 is mounted on the supporting bracket 34 and bears against the latch lever 31 to positively swing the hooked lower arm thereof into engagement with the plate 38 on the top rail of the lower door section. By this arrangement, when the door is closed the hooked lower end of the latch lever swings beneath the plate on the top rail of the lower door section, and thus locks the two door sections together, the weight of the operating handle 27 serving to hold the latch operating arm 36 thereof out of contact with the latch lever. When it is desired to open the door, the handle 27 is swung upwardly, thus causing the arm 36 thereof to swing downwardly into engagement with the short arm of the latch lever 31 which is swung in a direction that will disengage the hooked end thereof from the lower door section thereby permitting the two sections to separate.

The hereinbefore described door construction has numerous advantages. It is strong and durable and light in weight and is adapted to be quickly and easily installed as a complete unit in the elevator shafts. It serves as a form in erecting the wall of the shaft and as a metal trim for the door opening. It prevents fire from passing around the door sections; and it is adjustable to bring the wall anchors thereof into line with the joints in the masonry wall.

Obviously, numerous changes may be made without departing from the invention and I do not wish to be limited to the precise construction shown and described.

What I claim is:

1. An elevator door unit comprising a main frame provided with frame members forming the head, sill and jamb members of a door opening, guides mounted vertically on said jamb members, a door slidably mounted in said guides for closing said door opening, said door comprising an edge frame of substantially channel-shaped cross-section with the channels at the sides of said frame opening outwardly and straddling the respective door guides, said door guides being of channel-shape cross-section with their channels opening toward the channels in the sides of said door, and studs mounted in the side channels of said door and extending into the channels in said door guides.

2. An elevator door unit comprising a main frame provided with frame members forming the head, sill and jamb members of the door opening, guides mounted vertically on said jamb members, and a door comprising upper and lower sections slidably mounted in said guides for closing said door opening, each of said door sections comprising an edge frame of substantially channel-shaped cross-section with the channels of the side rails of said frame opening outwardly and straddling the respective door guides, said door guides being of channel-shaped cross-section with their channels opening toward the side channels in said door sections, and studs mounted in the side channels of said door sections and extending into the channels in said door guides.

3. An elevator door unit comprising a main frame provided with frame members forming the head, sill and jambs of a door opening, guides mounted vertically on said jamb members, a door slidably mounted in said guides for closing said door opening, said door comprising an edge frame of substantially channel-shaped cross-section with the channels of the side rails of said edge frame opening outwardly and straddling the respective door guides, said door guides being of channel-shaped cross-section with their channels opening toward the channels in the side rails of the edge frame for said door, said last mentioned channels being provided with studs that extend into the channels in said door guides, sheet metal cover plates covering the opening in the edge frame of the door, and insulating material located between said plates and filling the opening in said edge frame.

4. An elevator door unit comprising a main frame adapted to be placed within the masonry wall of an elevator shaft and being provided with frame members forming the head, sill and jambs of a door opening, guides mounted vertically on said jamb members, a door slidably mounted in said guides for closing said door opening, wall anchors, and means for attaching said wall anchors to said frame for limited vertical adjustment relative thereto to bring them in line with the joints in the masonry wall, the attaching means for each anchor comprising a separate bracket fixed to said frame and slidably supporting said anchor.

5. An elevator door unit comprising an upright main frame whose frame members are arranged to form the lintel, sill and jamb members of a door opening, door guides mounted vertically upon said jamb members, a door for said opening slidably mounted in said guides, and a sheet metal frame mounted in said door opening and removably secured therein, said sheet metal frame extending beyond the room side of said main frame and terminating in an outstanding flange that extends continuously around the top, bottom and sides of said sheet metal casing to constitute the room side trim for said door opening and has its marginal edge bent rearwardly and inwardly toward said

sheet metal frame and adapted to abut against the face of the wall in which said unit is mounted, said bent marginal edge of said outstanding flange constituting a gage for determining the thickness of the plaster finish for said face of said wall.

6. An elevator door unit comprising a main supporting frame provided with members forming the lintel, sill and jamb members of a door opening, door guides mounted vertically upon said jamb members, a door comprising upper and lower sections mounted in said guides, and a sheet metal frame mounted in said door opening and forming a trim thereof, said sheet metal frame being provided along its upper edge with an upstanding flange and along its lower edge with a depending flange, said flanges extending between the opposing faces of said frame and said door section, said door sections being provided with flashing members adapted, in the closed position thereof, to extend between said main frame and the flanges of said sheet metal frame.

7. An elevator door unit comprising a main frame provided with members forming the lintel, sill and jambs of a door opening, door guides mounted vertically upon said jamb members, and a door for closing said opening, said door comprising upper and lower door sections slidably mounted in said guides, sheaves carried by said main frame, flexible connections passing over said sheaves and connecting said door sections, each of said door sections comprising a metallic edge frame made up of channel members that open outwardly, the channel member at the lower edge of the upper door section having outwardly flared side flanges adapted in the closed position of said section to straddle the channel member at the upper edge of the lower door section, and the channel members at the sides of said door sections being adapted to straddle the respective door guides.

8. An elevator door unit comprising a main frame provided with frame members forming the lintel, sill and jamb members of a door opening, door guides mounted vertically upon said jamb members, a door slidably mounted in said guides for closing said door opening, a peep hole in said door, a vertically slidable shutter mounted on the shaft side of said door for covering said opening, and a fusible link operatively connected to the shaft side of said door and said shutter for holding said shutter in raised position.

9. An elevator door unit comprising a main frame provided with frame members forming the lintel, sill and jambs of a door opening, door guides mounted vertically upon said jamb members, a door for closing said opening, said door comprising upper and lower door sections slidably mounted in said guides for movement towards and away from each other in the same vertical plane, a latch mounted on one door section for automatically securing said door sections together in the closed position of said door, and a handle pivotally mounted on the other one of said door sections and operatively engaging said latch for releasing the same and for opening and closing said door.

10. An elevator door unit comprising a main supporting frame provided with frame members forming the lintel, sill and jamb members of the door opening, door guides mounted vertically upon said jamb members, a door comprising upper and lower sections mounted in said guides for movement towards and away from each other, a latch lever pivotally mounted for vertical swinging movement on the upper door section and having a depending arm adapted to swing beneath a portion of the lower door section when the door is closed, and a door operating handle pivotally supported on the upper door section and having an arm operatively engaging said latch lever for releasing the same from said lower door section, the weight of said handle serving to hold the latch releasing arm thereof in inoperative position.

Signed at St. Louis, Missouri, this 1st day of June, 1931.

JULIUS A. SCHWEIG.