W. B. GERVAIS.

ELEVATOR DOOR.

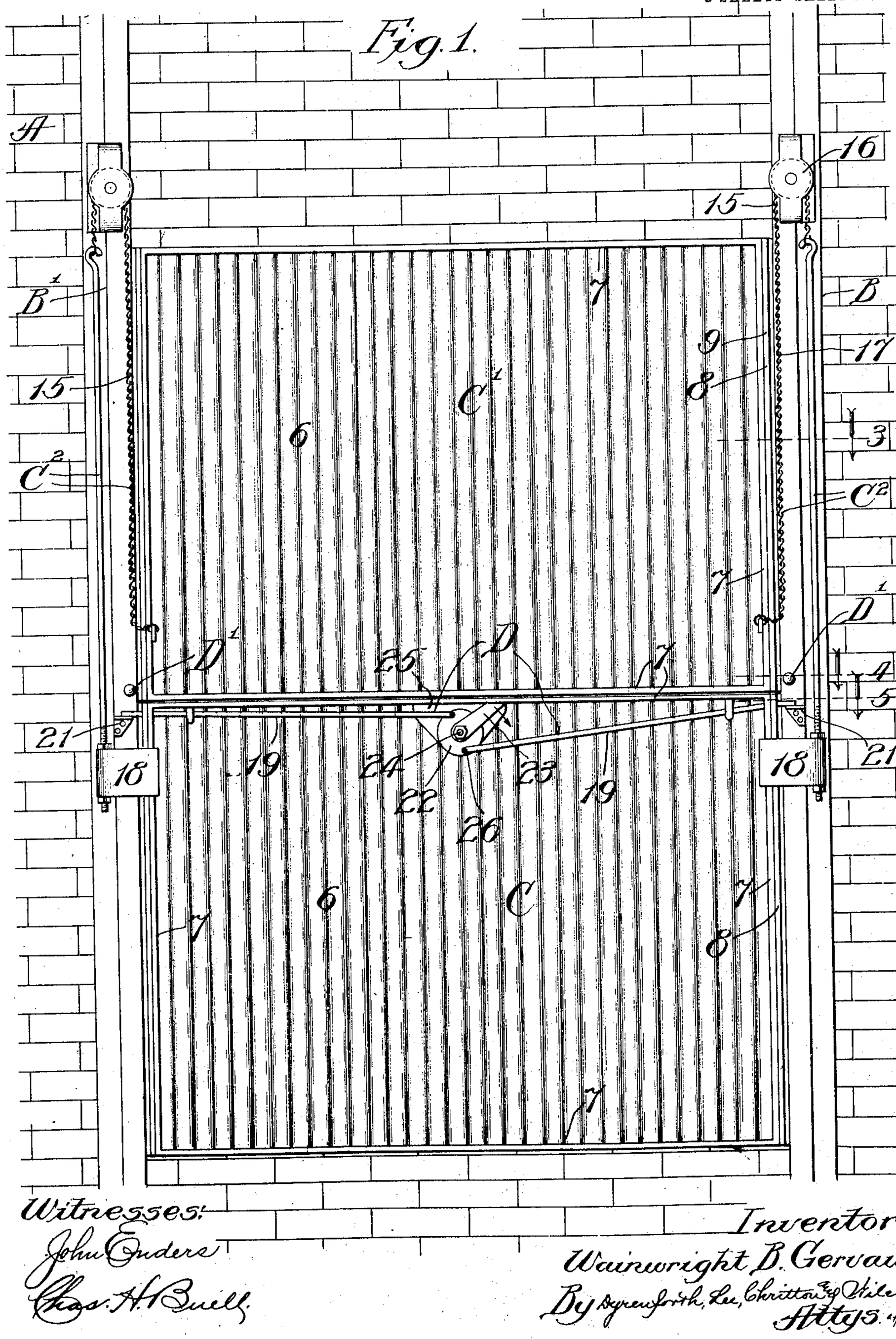
APPLICATION FILED JUNE 24, 1909.

998,242.

Patented July 18, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

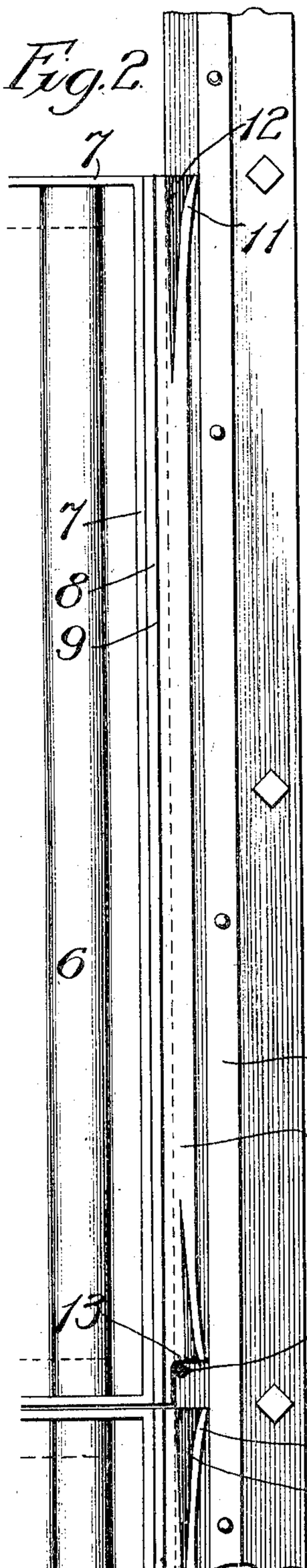


Fig. 3.

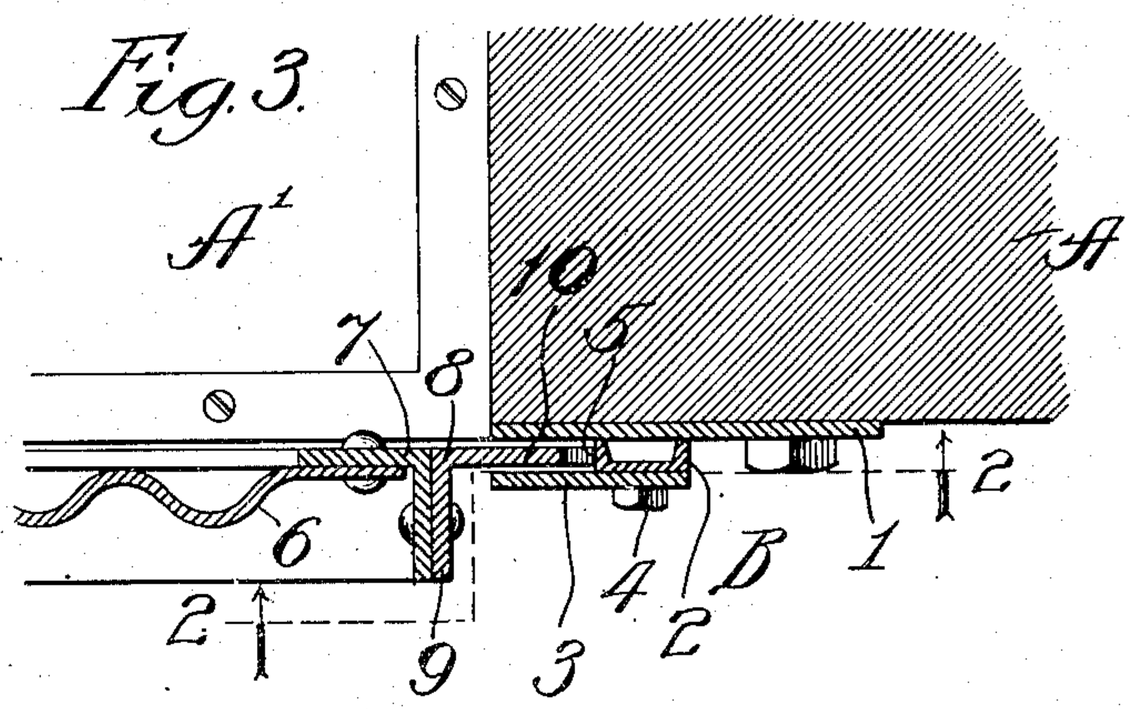


Fig. 4.

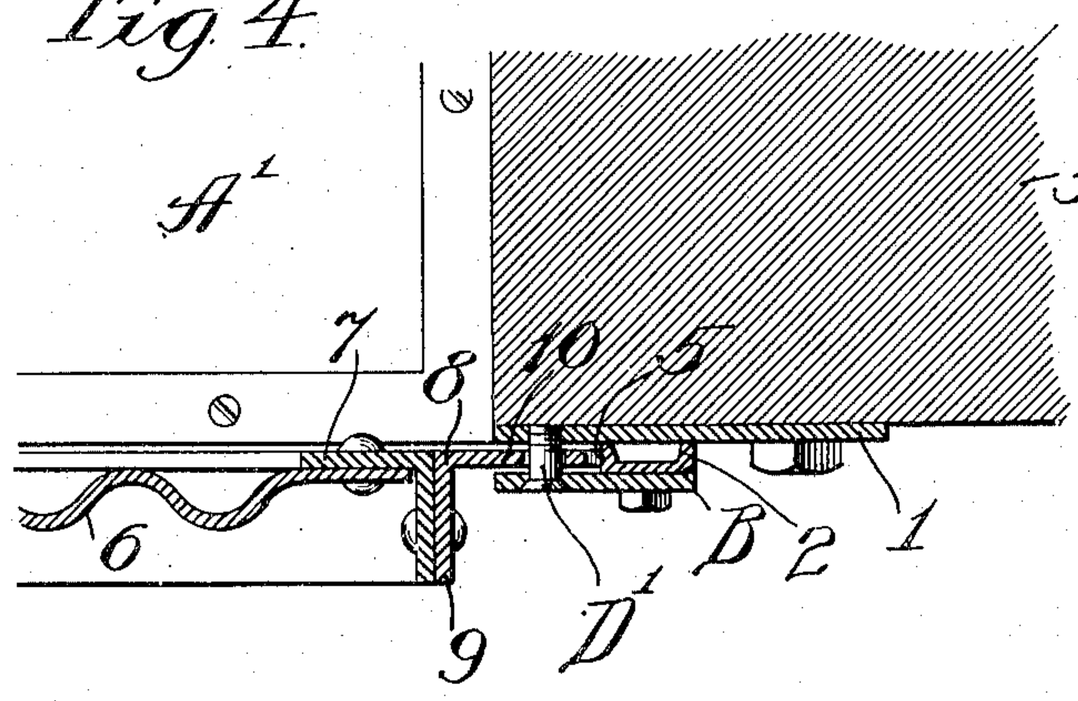
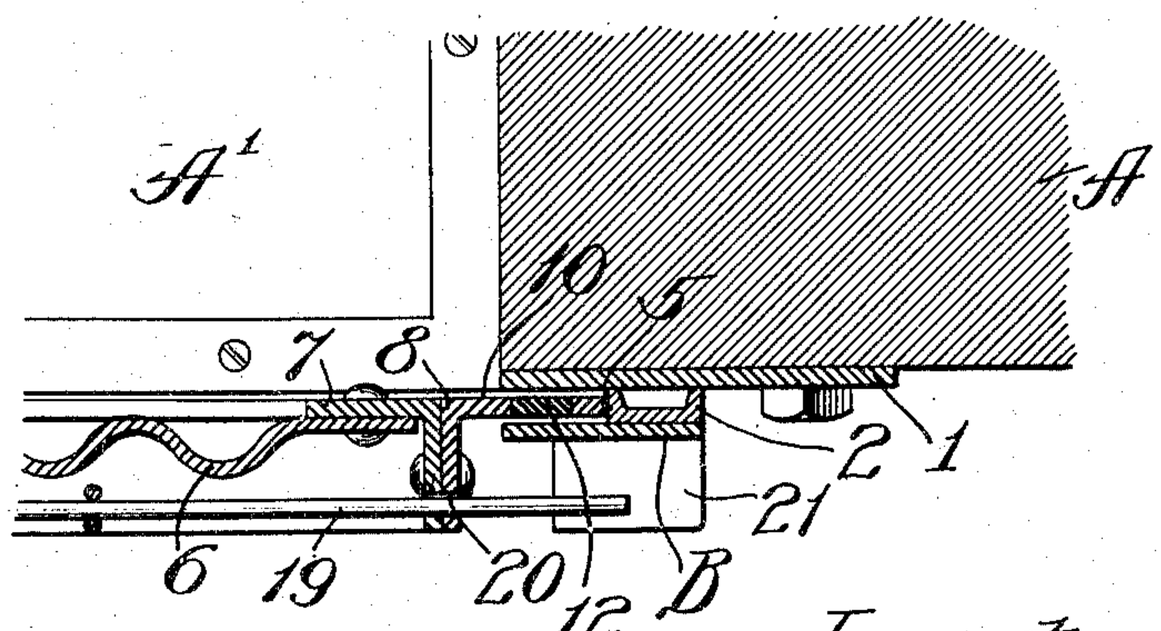


Fig. 5.



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UNITED STATES PATENT OFFICE.

WAINWRIGHT B. GERVAIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO VARIETY MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ELEVATOR-DOOR.

998,242. Specification of Letters Patent. **Patented July 18, 1911.**

Application filed June 24, 1909. Serial No. 504,165.

To all whom it may concern:

Be it known that I, WAINWRIGHT B. GERVAIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Elevator-Doors, of which the following is a specification.

My invention relates particularly to elevator doors for the shafts of freight elevators; and my primary object is to provide a door of improved construction and operation, particular attention being paid to securing a proper relation between the door and its guides, and to maintaining the door in its closed condition in the event of fire.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents an inner broken elevational view of the wall of an elevator shaft having a door-opening equipped with a door constructed in accordance with my invention; Fig. 2, a broken sectional view taken as indicated at line 2 of Fig. 3 and showing the relation of one edge of a door-section to the guide therefor; and Figs. 3, 4 and 5, broken horizontal sectional views taken as indicated at the corresponding lines of Fig. 1.

In the construction illustrated, A represents the wall of an elevator-shaft having a door-opening A^1; B, B^1, guides connected with the inner surface of the wall A adjacent to the vertical sides of the door-opening; C, C^1, lower and upper door-sections, respectively, movable in the guides B, B^1, said lower and upper door-sections being joined by connections C^2, whereby said sections serve to counterbalance each other; D, latching or locking mechanism connected with the lower door-section; and D^1, stops or supports carried by the guides B, B^1, and serving to limit downward movement of the upper door-section C^1.

The wall-construction A may be of any approved type, a brick wall being illustrated.

Each of the guides B, B^1, in the construction illustrated, comprises a bar or plate 1 connected with the marginal portion of the inner surface of the wall bordering the door-opening; a channel-bar 2, which serves as a spacing-member; and a narrow bar 3 overlapping said channel-bar, said bars 2 and 3 being secured to the plate 1 and the wall A by means of bolts 4. As clearly appears from Fig. 3, the inner portions of the bars 1 and 3 are separated by a space adapted to receive the flange of a metal door, and the inner edge-surface 5 of the channel-bar 2 is adapted to afford an edge-bearing for the door.

Each of the door-sections C, C^1 preferably comprises a corrugated sheet metal body 6 equipped at its upper, lower and lateral margins with angle-bars 7. Connected with the vertical angle-bars 7 of the door-sections are angle bars 8 having inturned flanges 9 connected with the adjacent flanges of the angle-bars 7 and having out-turned flanges 10 received by the guides B, B^1. The flanges 10 are split at their upper and lower ends, the severed portions being bent outwardly to afford bearings 11 which contact with the bearing-surfaces 5 of the channel-bars 2. The spaces formed by bending the members 11 outwardly are filled with lead or other material 12 adapted to melt at a comparatively-low temperature, whereby, when the door expands under the high temperature developed by a fire, the spaces filled by the material 12 will contract, so that excessive pressure will not be exerted between the edges of the door and the guides therefor. The lower end-portions of the flanges 10 of the upper door-section are cut away or recessed to afford shoulders 13 which rest, in the closed condition of the door, upon the studs D^1 with which the guides B, B^1 are equipped. Thus, secure supports for the upper door-section are provided which are adapted to prevent the door-section from falling in case of fire.

The connections C^2 between the door sections comprise chains or flexible members 15 connected with the lower portions of the angle-bars 7 of the upper door section and passing over pulleys 16; rods 17 connected with said chains; and members 18 connected with the lower ends of said rods and carried by the upper lateral edge-portions of the lower door-section, these connections being well understood in the art as a means whereby the door-sections may be made to counterbalance each other.

The latching or locking device D con-

nected with the lower door-section comprises latch-bars or rods 19 extending transversely across the upper portion of the door-section from the central portion thereof and projecting through perforations 20 (Fig. 5) with which the inturned flanges of the angle-bars 7 and 8 are provided; stationary stops or rests 21 carried by the guides B and B[1]; and a disk 22 equipped with an actuating handle 23 and supported on a stud 24 carried by a bracket or plate 25 with which the lower door-section is equipped centrally at its upper portion, the inner ends of the bars 19 being connected with the disk 22 by pivots 26.

The manner of operation will be readily understood. When it is desired to open the door, the handle 23 is turned in the direction indicated by the arrow in Fig. 1 to release the latch-bars 19, whereupon the upper door-section may be elevated and the lower door-section depressed. In the reverse operation, the door-sections are brought together and the lower door-section is locked by the mechanism D, while the upper section rests upon the studs D[1]. Thus it will be understood that both door-sections are secured against falling in the event of fire, which might have the effect of breaking the connections C[2]. Moreover, each door-section is supported independently of the other when the door-sections are in the closed position. The bearing-members 11 are normally in contact, or substantially in contact, with the adjacent surfaces 5 of the channel-bars 2 of the guides, so that racking of the door-sections in the guides is prevented in the operation of the door. The fusible fillets 12, under normal conditions, operate to stay or brace the otherwise yielding members 11, but in case of fire, said fillets become fused and allow the members 11 to be bent inwardly to compensate for the expansion of the door, so that the door-sections will not become wedged or stuck in their guides and incapable of being moved while a fire is in progress or after the fire has occurred.

The foregoing detailed description has been given for clearness of understanding, and no undue limitation is to be understood therefrom.

The details of the latching or locking mechanism D with which the lower door is equipped are preferably as shown and described, but may be varied according to desire, the important consideration being that the lower door-section shall be equipped with operable mechanism for locking and releasing the same to secure the door-section against dropping, while still permitting it to be operated.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a door of the character set forth, the combination of a pair of guides, a door-section slidable therein, bearing-members between the edge-portions of the door-section and said guides, and fusible supports for said bearing-members.

2. In a construction of the character set forth, the combination of a pair of guides, a door-section slidable therein and having its edge-portions equipped with bearing-members projecting normally beyond the lateral edges of the door, and fusible fillets supporting said bearing-members.

3. In a construction of the character set forth, the combination of a pair of guides, a slidable door-section having flanges located in said guides, said flanges being split and the severed portions bent outwardly to afford bearing-members, and fusible fillets in the spaces afforded by bending said bearing-members outwardly.

4. In a door, the combination of a pair of guides, upper and lower door-sections movable in said guides, connections between said door-sections whereby the door-sections serve as counterbalances for each other, latching mechanism carried by the lower door-section, stops co-acting with said latching mechanism, and stops adapted to support the upper door-section independently of the lower door-section.

5. In a construction of the character set forth, the combination of a pair of guides, upper and lower door-sections movable in said guides, stops carried by said guides and serving to limit the downward movement of the upper door-section, connections between said door-sections whereby said door-sections serve as counterbalances for each other, latching mechanism carried by the lower door-section and stops carried by said guides and co-acting with said latching mechanism.

6. In a construction of the character set forth, the combination of a pair of vertical guides, upper and lower door-sections movable in said guides, yielding bearing-members carried by the upper and lower portions of said door-sections, fusible fillets normally maintaining said bearing-members in the extended position, connections between said door-sections whereby said door-sections serve to counterbalance each other, and latching mechanism connected with the lower door-section.

WAINWRIGHT B. GERVAIS.

In presence of—
J. G. ANDERSON,
R. A. SCHAEFER.