

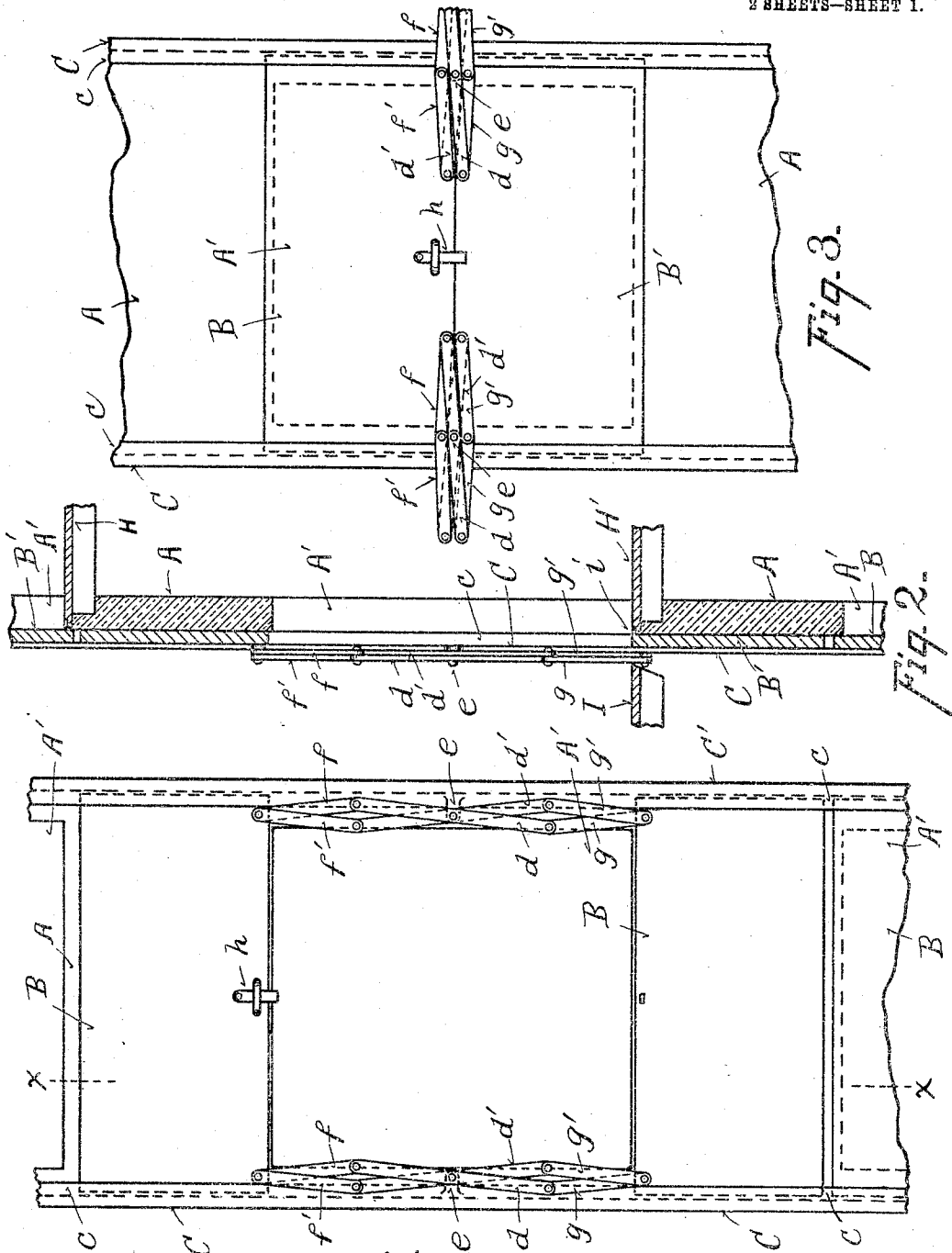
A. RITTER.
DOOR.

APPLICATION FILED JUNE 18, 1906.

958,976.

Patented May 24, 1910.

2 SHEETS—SHEET 1.



Witnesses

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Fig. 1.

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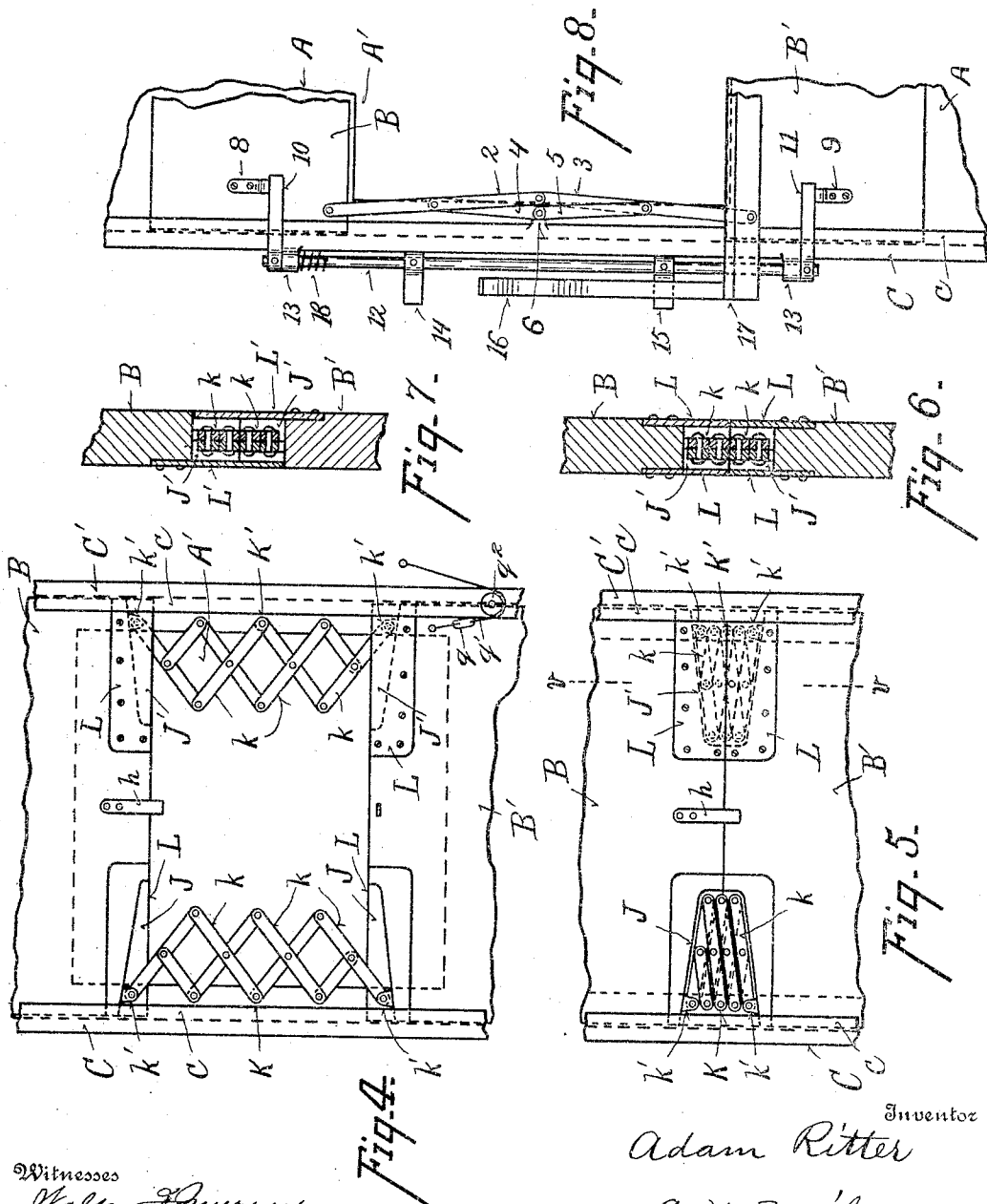
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UNITED STATES PATENT OFFICE.

ADAM RITTER, OF CINCINNATI, OHIO.

DOOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ADAM RITTER, citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Doors, of which the following is a specification.

My invention relates to improvements in doors.

One of its objects is to provide a door of simple and reliable construction adapted for use as an elevator door and for similar purposes.

Another object is to provide a door adapted to close automatically in case of fire or when tripped by the movements of the elevator.

Another object is to provide a door in which the supporting and operating parts will not be exposed to or liable to injury from fire.

It further consists in certain details of form, combination and arrangement, all of which will be more fully set forth in the description of the accompanying drawings, in which:

Figure 1 is a plan view of one form of my improved door in the open position. Fig. 2 is a section through the same on line *x x* of Fig. 1. Fig. 3 is a view similar to Fig. 1 showing the door closed. Fig. 4 is a view similar to Fig. 1 of a modified form, and showing the door partly open, and the protecting plates at one side detached. Fig. 5 is a view similar to Fig. 4 with the door closed. Fig. 6 is an enlarged section on line *v-v* of Fig. 5. Fig. 7 is a view similar to Fig. 6 showing a modified construction. Fig. 8 is a view similar to Fig. 4 showing another form of link mechanism, and also means for tripping the door sections to automatically close by the movements of the elevator.

In the accompanying drawings A represents the wall or door frame in which are formed openings A'.

B B' represent door sections adapted to move in unison but in opposite directions to open and close the door.

C C' represent guides secured to the wall and forming channels *c* in which the edges of the door sections slide.

As shown in Figs. 1, 2, and 3 cross links *d d'* are pivoted centrally to projections *e* carried by the guides C C'. Links *d d'* may however be pivoted to a stud or bracket

attached to the wall. The ends of links *d d'* at one end are pivoted to one end of links *f f'*, the opposite ends of which are pivoted to the door section B. The opposite ends of links *d d'* are pivoted to one end of links *g g'*, while the opposite ends of links *g g'* are pivoted to the door section B'. Thus the weight of the door sections B B' is supported by the central pivots *e* of the cross links *d d'* the weight of one door section counterbalancing or nearly counterbalancing the weight of the other, so that the door sections will move easily and remain in practically any position to which they may be moved along the guide channels within the limits of extension of the links and thus require no means to hold them open. In Figs. 1 and 2 is shown the position of the links when the door is fully opened, and in Fig. 3 is shown the position of the parts when the door is closed. *h* represents a latch which serves to latch the door sections together when closed. In Fig. 2 H H' represent the different floors of the building, and I the elevator platform. In order that trucks may be run to and from the elevator I preferably provide a metal lip *i* on the upper edge of the door section B which seats in a recess in the floor so that pressure of the wheels on the edge of the door section B will not be transmitted to the link mechanism, but will be sustained by the lip *i* instead.

In Figs. 4, 5, and 6 I have shown another form of link mechanism adapted to support the door sections in substantially the manner heretofore described, and which also permits the link mechanism to be housed when the door is closed, in recesses J J' formed in the meeting edges of the door sections. K K' represent the pivots by means of which the door sections are supported and the links attached to the wall, being preferably studs projecting from the wall. *k* represents the links and *k'* the points at which they are pivoted to the door sections. Fig. 4 shows the position of the links when the door is partly open, and Fig. 5 the position when the door is closed, L represents side plates attached to the door sections and forming the side walls of the recesses J J'. In Figs. 4 and 5 the side plates L have been removed from one side of recesses J to show the position of the links.

Fig. 7 illustrates a modification of Fig.

6 in which only one side plate L' is employed instead of two side plates L on each side as shown in Fig. 6. By housing the links in recesses J J' the links are out of the path of flames or hot air currents, and where fire proof door sections are employed will effectually resist the action of fire. By making the upper door section slightly heavier than the lower door section, while the doors may be readily opened by hand, they will upon being released automatically close, and may thus be employed as fire guards by being held open by fusible links employed as illustrated in Fig. 4 by fusible link q , wire q' and stud or roller q^2 .

Fig. 8 shows another modification of the link mechanism consisting of two long links 2 3 pivoted together, and at their opposite ends to the respective door sections B B'. 4, 5 represent links pivoted at 6 to the wall, and at their opposite ends to the central portion of links 2 3. The form of link mechanism shown in Fig. 8 may be employed either with recessed door sections or not as desired. In Fig. 8 I have also shown one form of mechanism by means of which the door sections may be automatically released and the door closed as the elevator moves away therefrom in either direction. Latches 8 9 are carried by the respective door sections, which latches when the door is opened, engage arms 10 11 carried by a rod or shaft 12 journaled at 13 to the wall A or guide C. Shaft 12 also carries arms 14, 15 which are adapted to be engaged by a cam or trip 16 carried by the elevator 17, which serves to rock the shaft 12 and release the arms 10 11 from the latches 8 9. A spring 18 serves to normally hold the arms 10 11 in position to engage the latches 8, 9. Thus as the elevator departs in either direction the door sections are released, and the upper door section being slightly heavier than the lower door section, the door is automatically closed.

Where sufficient space is available at the sides of the opening A' the form of link mechanism Figs. 1 to 3 may be employed, but where the space is limited the forms shown in Figs. 4 to 8 are preferable, as they require no extra space and when fully open do not obstruct the opening A'.

The mechanism herein shown and described is capable of considerable modification without departing from the principle of my invention.

Having described my invention, what I claim is:

1. In a door, a plurality of door sections, guides engaging said sections to hold them in place and direct their movements, a series of links pivoted together, pivotal connections between said links and the respective door sections, a stud supporting said links relative to the wall, and recesses at the meet-

ing edges of the door sections to house said links when the door sections close the opening.

2. In a door, a plurality of vertically moving door sections, guides engaging said sections to hold them in place and direct their movements, and separate link mechanisms at opposite sides of the opening, each comprising a series of links pivoted together, supported relative to the wall and pivotally connected to the respective door sections.

3. In a door, a plurality of vertically moving door sections, guides engaging said door sections to hold them in place and direct their vertical movements, and separate link mechanisms located at opposite sides of the opening, each link mechanism comprising a series of links pivoted together, pivotally supported relative to the wall and pivotally connected to the edges of said door sections, one of said door sections being slightly heavier than the other so that the door sections will automatically seek a predetermined position.

4. In a door, a plurality of door sections, guides engaging said sections to hold them in place and direct their movements, a series of links pivoted together, pivotal connections between said links and the respective door sections, pivotal supports connecting said links relative to the wall, and means carried by said door sections to inclose said links when the door is closed.

5. In a door, a plurality of vertically moving door sections, guides at opposite sides of said door sections and separate link mechanisms pivotally connected to opposite sides of the door sections and to the wall and projecting inwardly from opposite sides of the opening.

6. In a door, a plurality of vertically moving door sections traveling in guides, and separate link mechanisms at opposite sides of the opening each comprising a series of links pivoted together, pivotally attached at their extremities to the respective door sections, and pivoted at an intermediate point to the wall.

7. In a door, a plurality of vertically moving door sections traveling in guides, separate link mechanisms at opposite sides of the opening, each comprising a series of links pivoted together, pivotally attached at their extremities to the respective door sections, and pivoted at an intermediate point to the wall, and means for automatically releasing said doors.

In testimony whereof I have affixed my signature in presence of two witnesses.

ADAM RITTER.

Witnesses:

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