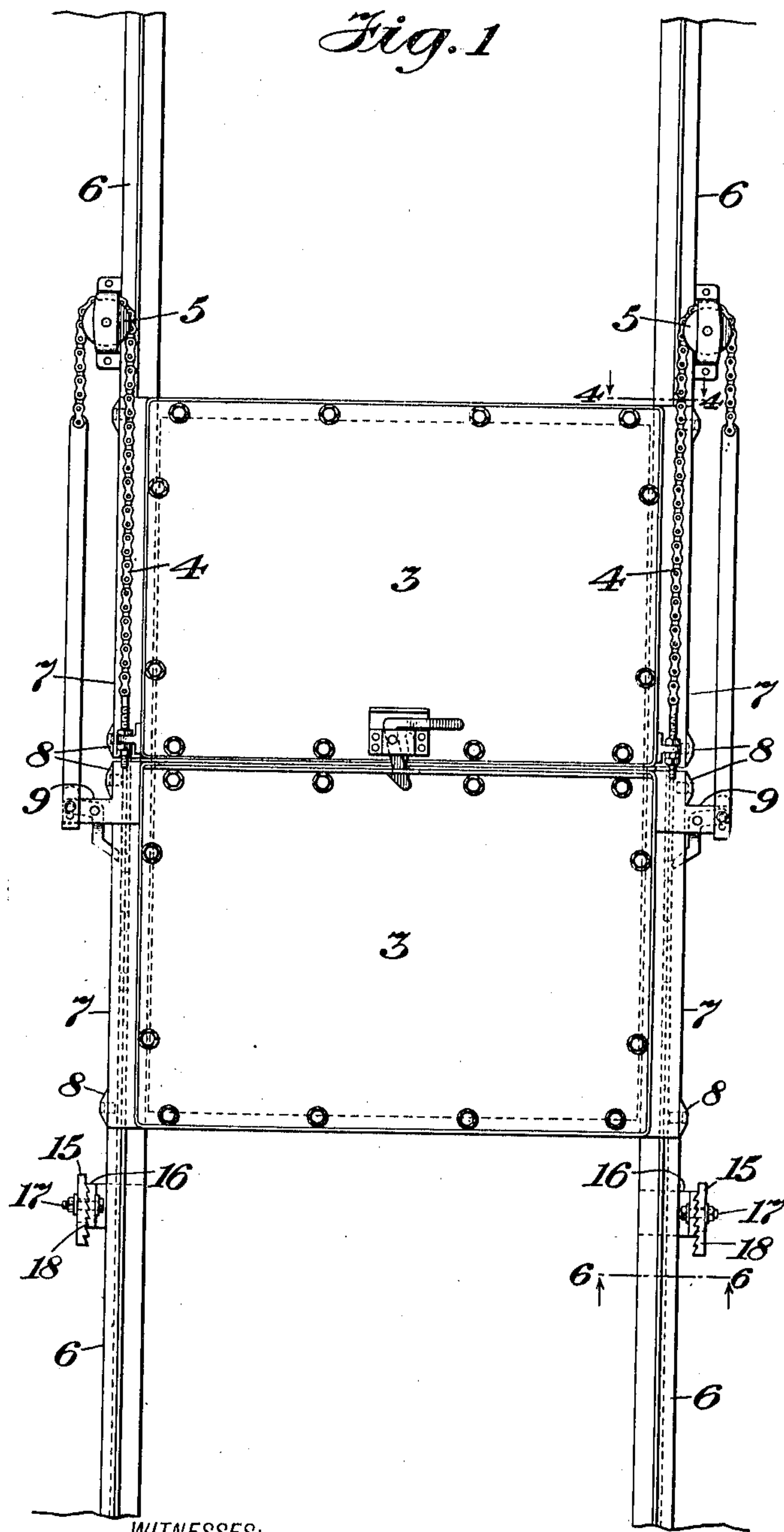


J. RASHKIN.  
DOORS FOR ELEVATOR SHAFTS.  
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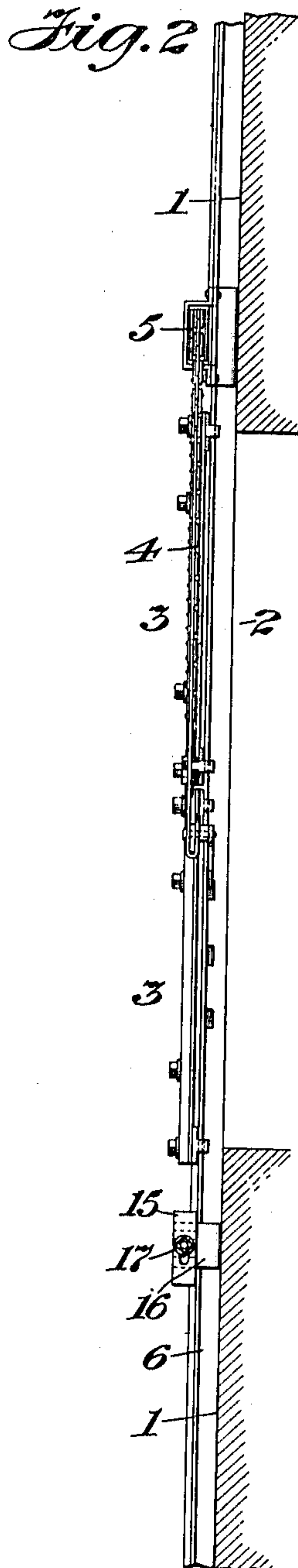
Patented May 23, 1911.

2 SHEETS-SHEET 1.



WITNESSES:

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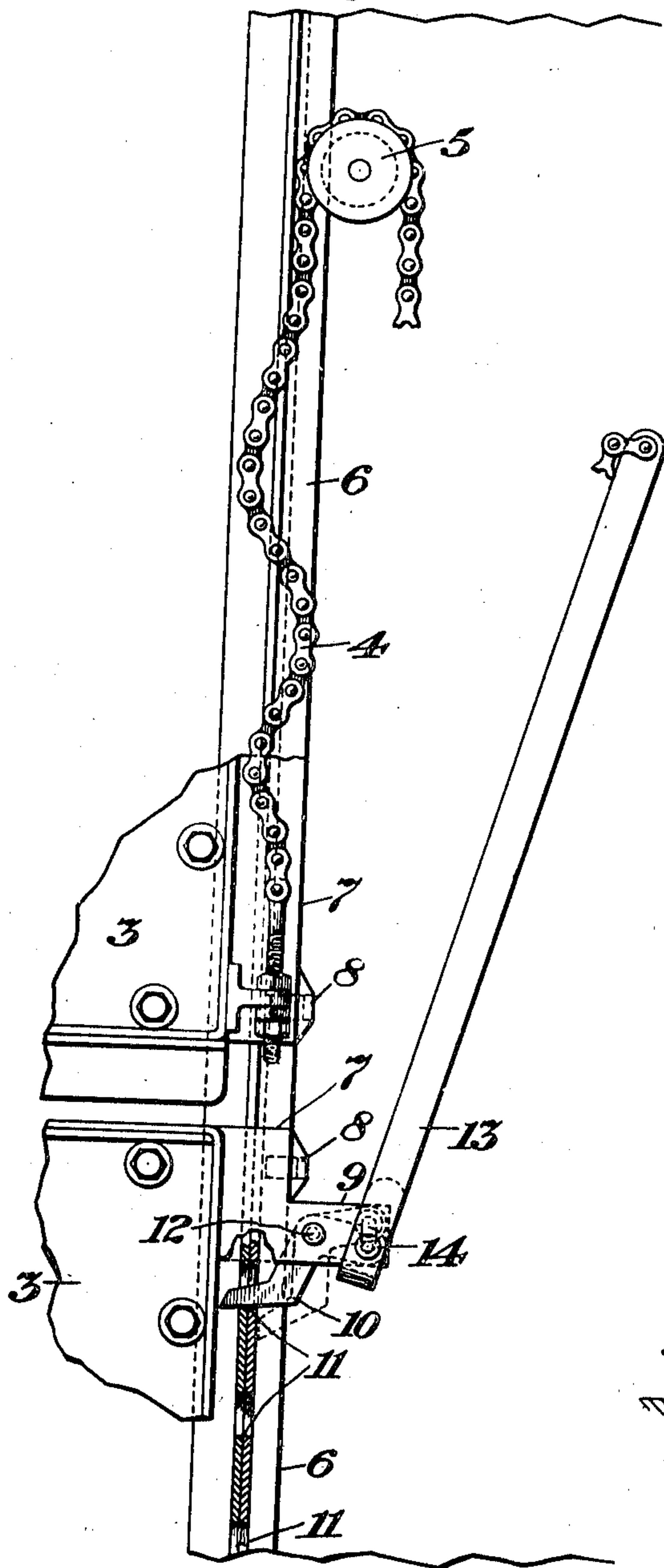
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993,103.

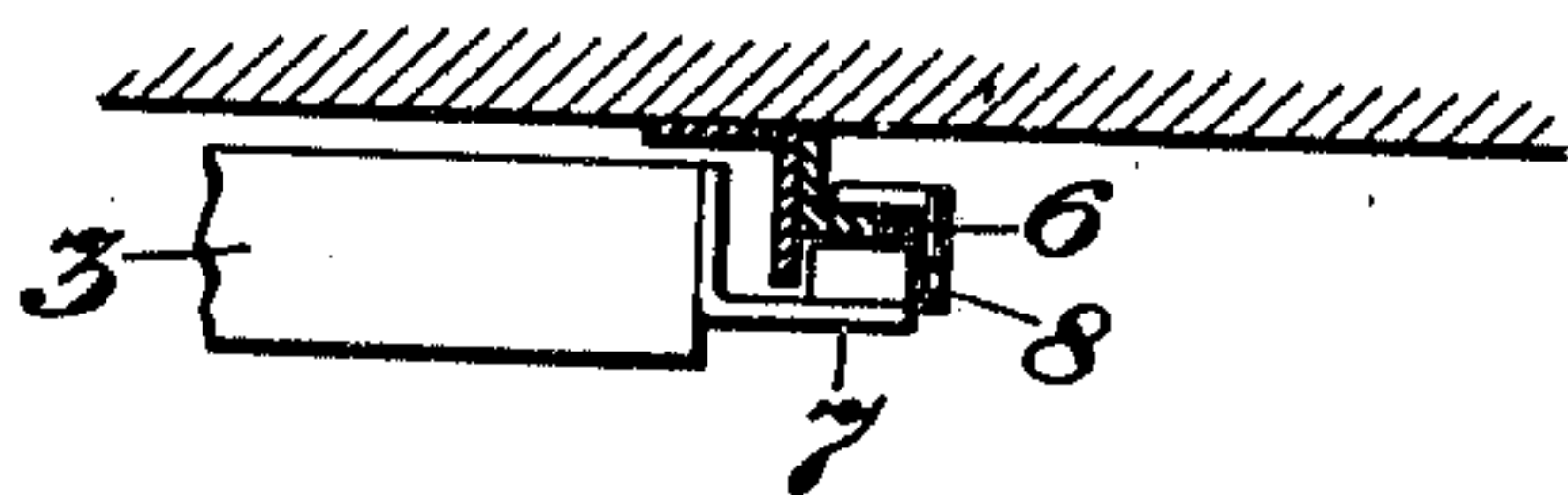
Patented May 23, 1911.

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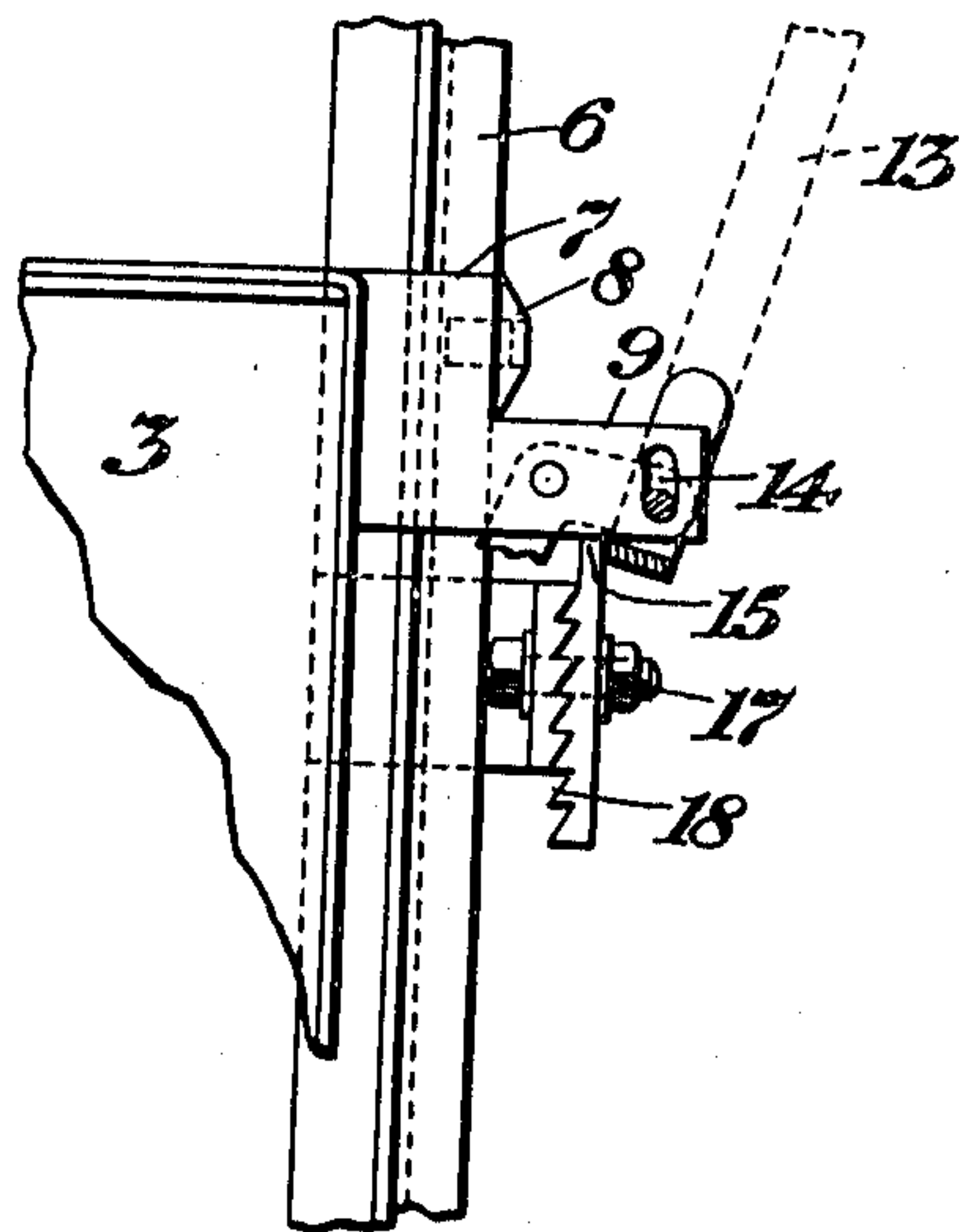
*Fig. 3*



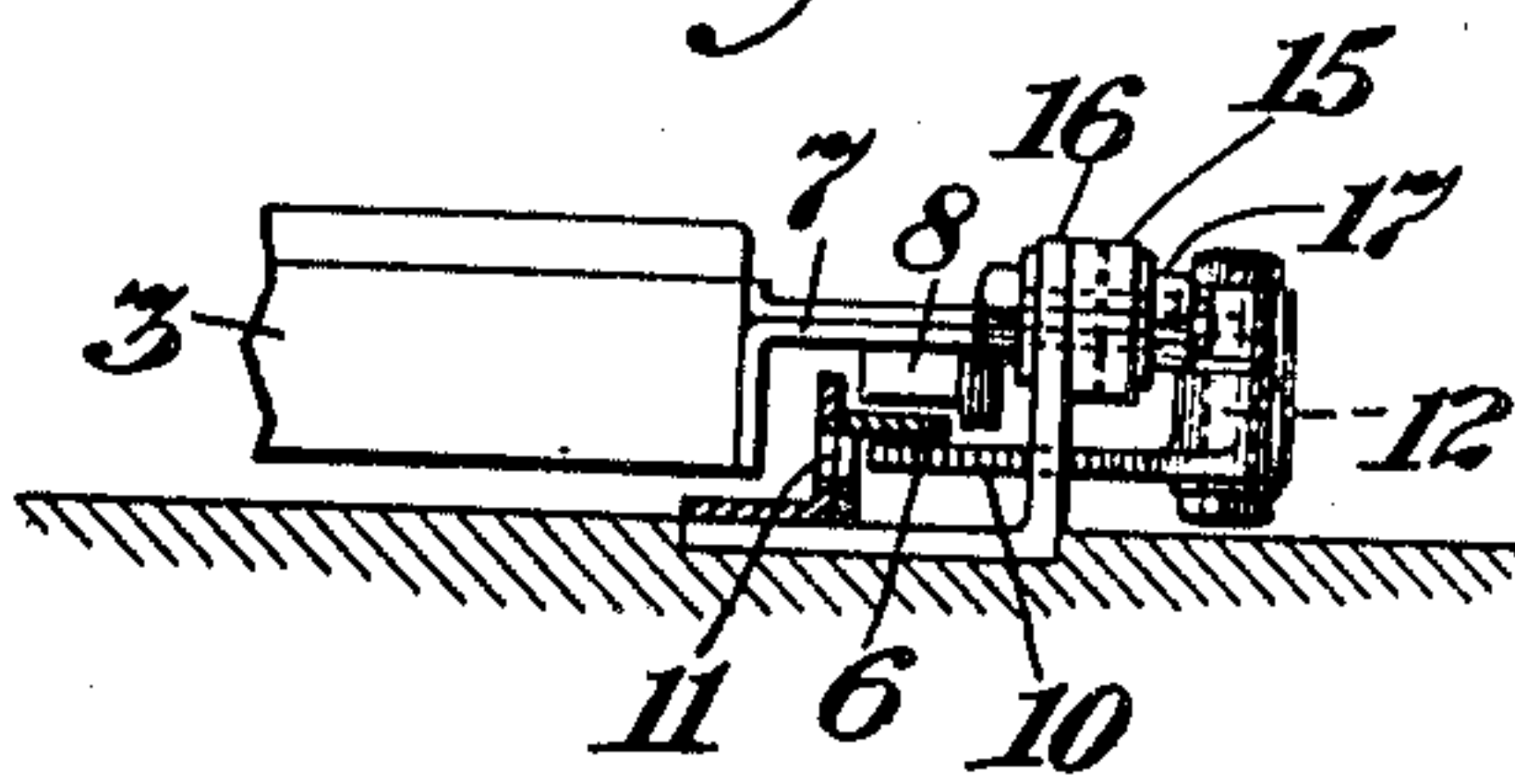
*Fig. 4*



*Fig. 5*



*Fig. 6*



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# UNITED STATES PATENT OFFICE.

JOSEPH RASHKIN, OF NEW YORK, N. Y.

DOORS FOR ELEVATOR-SHAFTS.

993,103.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed April 27, 1910. Serial No. 558,071.

*To all whom it may concern:*

Be it known that I, JOSEPH RASHKIN, citizen of the United States, and resident of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Doors for Elevator-Shafts, of which the following is a specification.

This invention has special reference to improvements in that type of sliding doors for elevator shafts comprising a pair of counterbalanced doors operatively connected by cables operating over stationary supporting sheaves and guided in their movements by cooperating guide rails, although the invention in some of its features is also applicable to sliding doors or closures of different types as will hereinafter be referred to.

In the type of sliding doors particularly referred to, the connection between the doors and their guide rails is usually effected by means of shoes on the opposite vertical edges of the doors having open channels in which the guide rails are loosely received. The rail-receiving channels of these shoes as heretofore provided, however, have usually opened in a direction outwardly from the door, whereby, in the event of the rails becoming loosened from their support, they are permitted to move laterally outward from their operative connection with the shoes, in which event the door is liable to swing or be otherwise moved from its normal path of movement to a position in the path of a moving elevator by which it is liable to be broken from its connections and be thereby permitted to drop into the elevator shaft with the liability of incurring such further damage as may be incident thereto.

With such facts in mind, it has been one of the objects of my invention to provide an improved means of connection between the doors and their guide rails whereby disconnection of said parts under the conditions referred to will be prevented.

To that end, my invention consists in so constructing and arranging the guide rails and their engaging shoes that the rails will be located between the door and the shoes and thereby be held by the latter against disconnection therefrom in the event of their becoming loosened from their supports.

Another feature of my invention has reference to an improved automatic safety brake for checking and limiting the move-

ment of the doors in the event of the breakage of their counterbalance connection. As well understood, if the counterbalance cable or other connection between the counterbalanced doors should break, the doors would drop and by reason of their momentum and combined weight be liable to break the regular stop provided for engagement with the lower door and drop on down the shaft into engagement with the door below and either cause damage to that or cause it to break loose from its connection, etc.

With this in mind, it has therefore been a further object of my present invention to provide a simple and effective means to guard against such accidental dropping of the doors and assure the door-way opening into the shaft being kept partially or wholly closed under the conditions mentioned.

To this end, my invention consists in connecting a brake with the lower door and with the counterbalance connection between the doors in such manner that the brake will normally be held by said connection in a position for non-engagement with a cooperating stop, but will be operative upon breakage of said connection to automatically move into engagement with said cooperating stop to check and limit the movement of the doors.

Other features and objects of my invention will be referred to in the detailed description of the invention which follows:

Referring now to the accompanying drawings forming part of this specification, Figure 1 is a front elevation of a pair of counterbalanced doors and their associated guide and brake devices embodying my invention. Fig. 2 is an edge view of the same shown in operative relation to a section of a shaft wall having a door-way opening therein. Fig. 3 is an enlarged detail, partly in section, showing the operation of the safety brake upon the breakage of the counterbalance connection between the doors. Fig. 4 is an enlarged detail showing the connection between one of the doors and a guide rail, the latter being in section on line 4-4 of Fig. 1. Fig. 5 is an enlarged detail, partly in section, showing the engagement of the lower door with its stop device and also showing the connection with said door of a rod forming part of the counterbalance connection between the doors. Fig. 6 is an enlarged sectional detail taken on the line 6-6 of Fig. 1 and looking upward in the direc-



tion indicated by the arrow, showing the relation of the door at one side thereof with its guide, brake and stop devices.

Similar reference characters indicate like parts in the several figures of the drawings.

1 indicates the wall of an elevator shaft having a door-way opening 2 therein. Opposite said door-way opening and within the elevator shaft are located a pair of counterbalanced doors 3, 3, which are operatively connected by counterbalance cables 4, 4, operating over stationary supporting sheaves 5, 5, and which are guided in their vertical opening and closing movements by means of vertically arranged guide-rails 6, 6, suitably attached to the walls of the shaft or other fixed supports. The said doors 3, 3, are of usual construction, each of the same comprising a wooden body portion mounted on an angle-iron frame and covered by sheet metal. These doors at their opposite vertical edges are each provided with laterally projecting flanges 7, 7, to which are attached channeled shoes 8, 8, for engagement with the guide-rails, 6, 6, which latter, in accordance with my invention and as clearly shown in Fig. 4, are located between the door and the engaging shoes whereby, in the event of their becoming loosened from their supports or fastenings, they will be retained in operative connection with the doors as hereinbefore referred to. In order to permit of expansion of the doors in case of fire without liability of their becoming "jammed" between the guide-rails, and their free movement thereby prevented, a substantial space is provided between the doors and rails for that purpose as shown.

The lower door is provided at its opposite vertical edges with bracket arms or extensions 9, 9, to which are attached safety or emergency brakes 10, 10, for cooperation with a series of stationary stops 11, here shown as being formed by a series of openings in the guide rails. Said brakes 10, 10, as shown in the present case, are in the form of levers pivoted to the bracket arms at 12 and having connection at one end with rods 13 forming terminals of the counterbalance connections, by which they are normally held in a position for non-engagement with the stops 11, as shown in Fig. 1, and as indicated by dotted lines in Fig. 3. The said rods 13, however, are each connected with the bracket arms 9, 9, by means of a slot-and-pin connection 14 in a manner whereby the lower or brake-connecting end of the rods, upon breakage of the cables, will have a downward movement relatively to the bracket arms and thereby cause the brakes to bear against the guide rails and enter the first openings therein they approach, in a

manner as clearly indicated in Fig. 3, whereby the doors will be brought to a stop.

As a means to limit the downward movement of the lower door in its normal operation, stops 15, 15, are provided for engagement with the bracket arms 9, 9, on said door. These stops are carried by stationary supporting brackets 16, 16, on the guide rails, to which the stops are held in a vertically adjustable position by means of clamping bolts 17 and inter-locking teeth 18 on the adjacent faces of the respective parts as shown.

What I claim is:—

1. In combination, a pair of vertically movable counterbalanced doors, a counterbalance connection between said doors operating over a supporting sheave, a stop, and a pivoted brake carried by the lower of said doors for engagement with said stop, said brake having connection with said counterbalance connection to be normally held thereby in position for non-engagement with the stop and being operative upon breakage of the counterbalance connection to automatically move into engagement with said stop.

2. In combination, a pair of vertically movable counterbalanced doors, a counterbalance connection between said doors, a guide rail for said doors provided with a series of stops, and a pivoted brake carried by the lower door for engagement with said stops, said brake having connection with the counterbalance connection to be normally held thereby in position for non-engagement with said stops and being operative upon breakage of the counterbalance connection to automatically move into engagement with one of said stops.

3. In combination, a pair of vertically movable counterbalanced doors, a connection between said doors including a rod, a supporting sheave over which said connection operates, a stationary stop, and a pivoted brake carried by the lower of said doors for engagement with said stop, said brake having connection with said rod of the counterbalance connection to be normally held thereby in position for non-engagement with the stop and being operative upon breakage of the counterbalance connection and under the weight of the connected rod to automatically move into engagement with said stop.

Signed at New York, in the county of New York and State of New York this 20th day of April, A. D. 1910.

JOSEPH RASHKIN.

Witnesses:

CHAS. F. DANE,  
K. M. CASSIDY.