

No. 757,178.

PATENTED APR. 12, 1904.

W. A. CROSS.
VERTICALLY MOVING DOOR.
APPLICATION FILED AUG. 1, 1903.

NO MODEL.

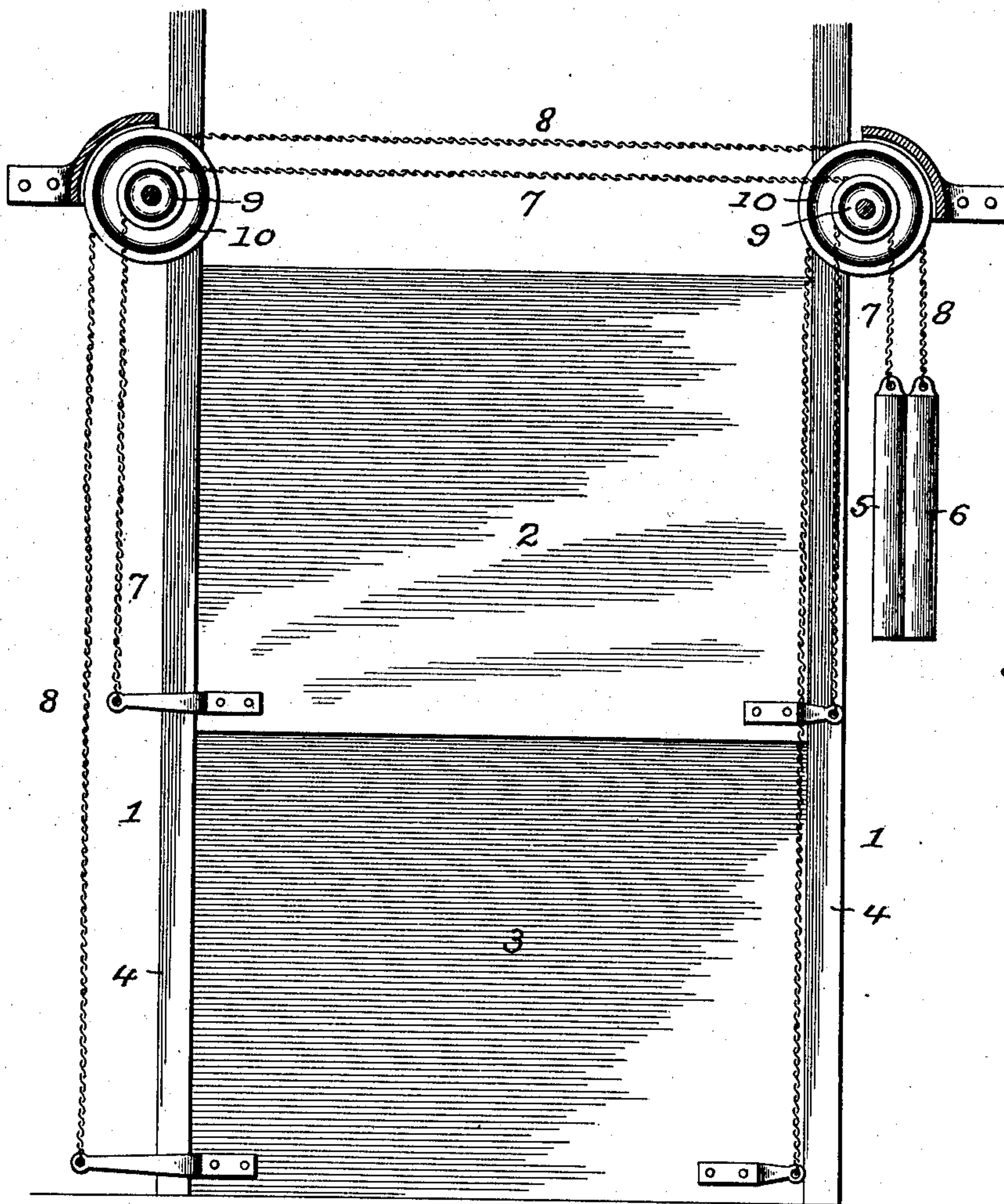


Fig. 1.

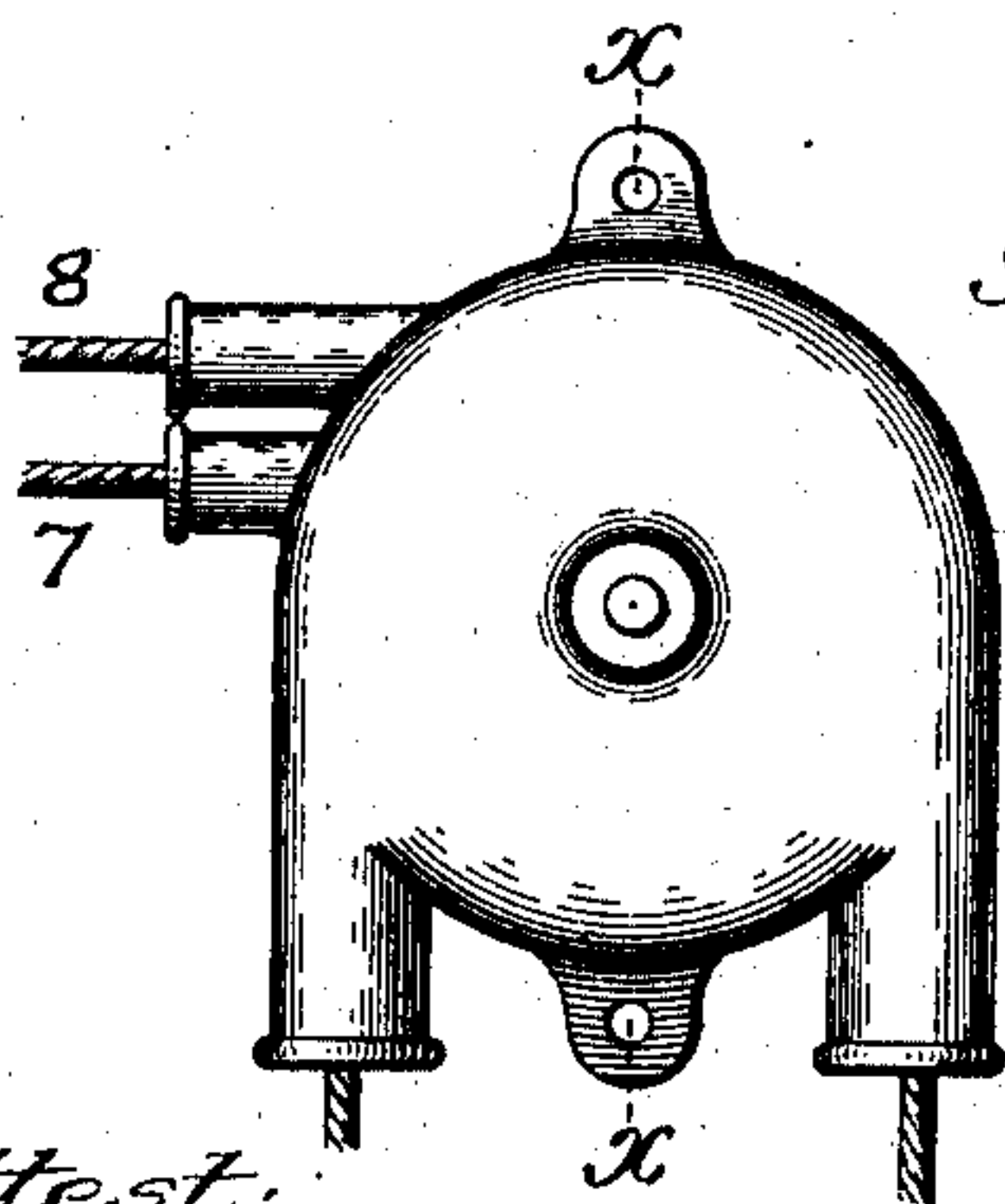
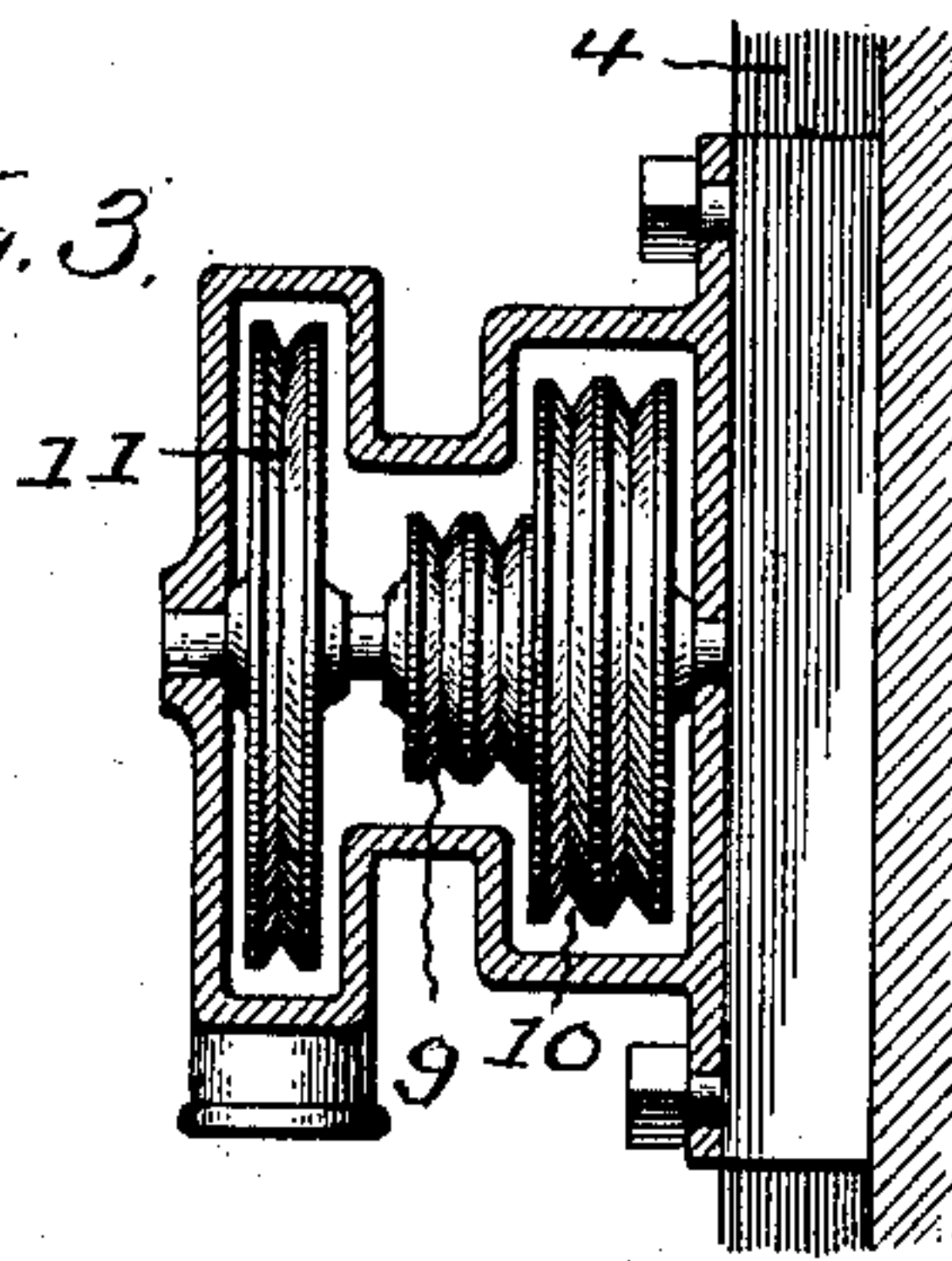


Fig. 2.

Fig. 3.



Attest:

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UNITED STATES PATENT OFFICE.

WILLIAM A. CROSS, OF CHICAGO, ILLINOIS.

VERTICALLY-MOVING DOOR.

SPECIFICATION forming part of Letters Patent No. 757,178, dated April 12, 1904.

Application filed August 1, 1903. Serial No. 167,820. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. CROSS, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Vertically-Moving Doors, of which the following is a specification.

The present invention relates to means for raising and lowering that type of doors for elevator-wells and the like in which the doors are formed in separate sections which are adapted to slide in adjacent vertical planes in the opening and closing of the doors; and the present invention has for its object to provide a simple and effective means whereby the sections comprising the doors are simultaneously telescoped together and raised in the operation of opening the door, all as will hereinafter more fully appear and be more particularly pointed out in the claims.

In the accompanying drawings, illustrative of the present invention, Figure 1 is an elevation illustrative of the present invention; Fig. 2, a detail front elevation of one of the overhead sheaves; Fig. 3, a detail sectional elevation of the same at line *xx*, Fig. 2.

Referring to the drawings, 1 represents the doorway of a warehouse elevator-well or the like closed by a door formed in two halves or sections 2 and 3, which slide in vertical guides 4 at the respective sides of the doorway 1, as usual in the present class of doors.

5 and 6 are weights, and 7 and 8 are branched flexible connections passing around the series of overhead sheaves, hereinafter described, and connecting the respective weights with the lower corners of the respective door-sections 3 and 4 in an individual manner, as shown.

9 and 10 are the overhead sheaves around which the aforesaid flexible connections 7 and 8 pass. Such sheaves are arranged in line with the sides of the doorway 1 and are composed of individual pulleys corresponding in number to the aforesaid branches of the flexible connections 7 and 8. Each set of pulleys have been secured to a common carrying-shaft, so as to rotate together.

11 is an operating-pulley secured to the car-

rying-shaft of one of the aforesaid set of pulleys to afford a means for imparting positive movement to the aforesaid flexible connections and through the same to the door-sections 2 and 3 in the operation of opening or closing the doorway. Such pulley 11 may be operated in a direct manner by hand or in an indirect manner by an ordinary endless chain, as found most convenient.

A material part of the present invention consists in forming the sheaves or pulleys that are individual to the lower door-section 3 of a diameter substantially double that of the sheaves or pulleys that are individual to the operative connections of the upper door-section 2. With such arrangement the lower door-section 3 will have a travel double that of the upper door-section 2, and in an opening movement of the present sectional door the lower door-section 3 will assume a final position over the doorway 1 and at one side of the upper door-section 2.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a door-closing mechanism, the combination of a pair of door-sections, means for guiding the same in a vertical direction, a pair of individual counterweights, a pair of individual flexible connections attached at one end to the respective counterweights and at the other end to the lower portion of the respective door-sections, individual overhead pulleys for the passage of said flexible connections, the said pulleys having different diameters and secured together so as to rotate in unison, and means for imparting rotation to said pulleys, substantially as set forth.

2. In a door-closing mechanism, the combination of a pair of door-sections, means for guiding the same in a vertical direction, a pair of individual counterweights, a pair of individual flexible connections attached at one end to the respective counterweights and at the other end to the lower portion of the respective door-sections, individual overhead pulleys for the passage of said flexible connections, the said pulleys having different diameters and secured together so as to rotate in unison, and means for imparting rotation

to said pulleys, the same comprising a shaft carrying said pulleys, and an operating-pulley secured to said shaft, substantially as set forth.

5 3. In a door-closing mechanism, the combination of a pair of door-sections, means for guiding the same in a vertical direction, a pair of individual counterweights, a pair of individual branched flexible connections at-
10 tached at one end to the respective counterweights and at the other end to the respective lower corners of the respective door-sections, individual overhead pulleys for the passage of said flexible connections, the said pulleys
15 having different diameters and secured together to rotate in unison, and means for imparting rotation to said pulleys, substantially as set forth.

20 4. In a door-closing mechanism, the combination of a pair of door-sections, means for

guiding the same in a vertical direction, a pair of individual counterweights, a pair of individual branched flexible connections attached at one end to the respective counterweights and at the other end to the respective lower corners of the respective door-sections, individual overhead pulleys for the passage of said flexible connections, the said pulleys having different diameters and secured together to rotate in unison, and means for imparting rotation to said pulleys, the same comprising a shaft carrying said pulleys and an operating-pulley secured to said shaft, substantially as set forth.

Signed at Chicago, Illinois, this 29th day of July, 1903.

WILLIAM A. CROSS.

Witnesses:

ROBERT BURNS,
M. H. HOLMES.