No. 762,389. PATENTED JUNE 14, 1904.

W. A. CROSS.

WAREHOUSE DOOR.

APPLICATION FILED AUG. 1, 1903.

NO MODEL.

Fig. 1.

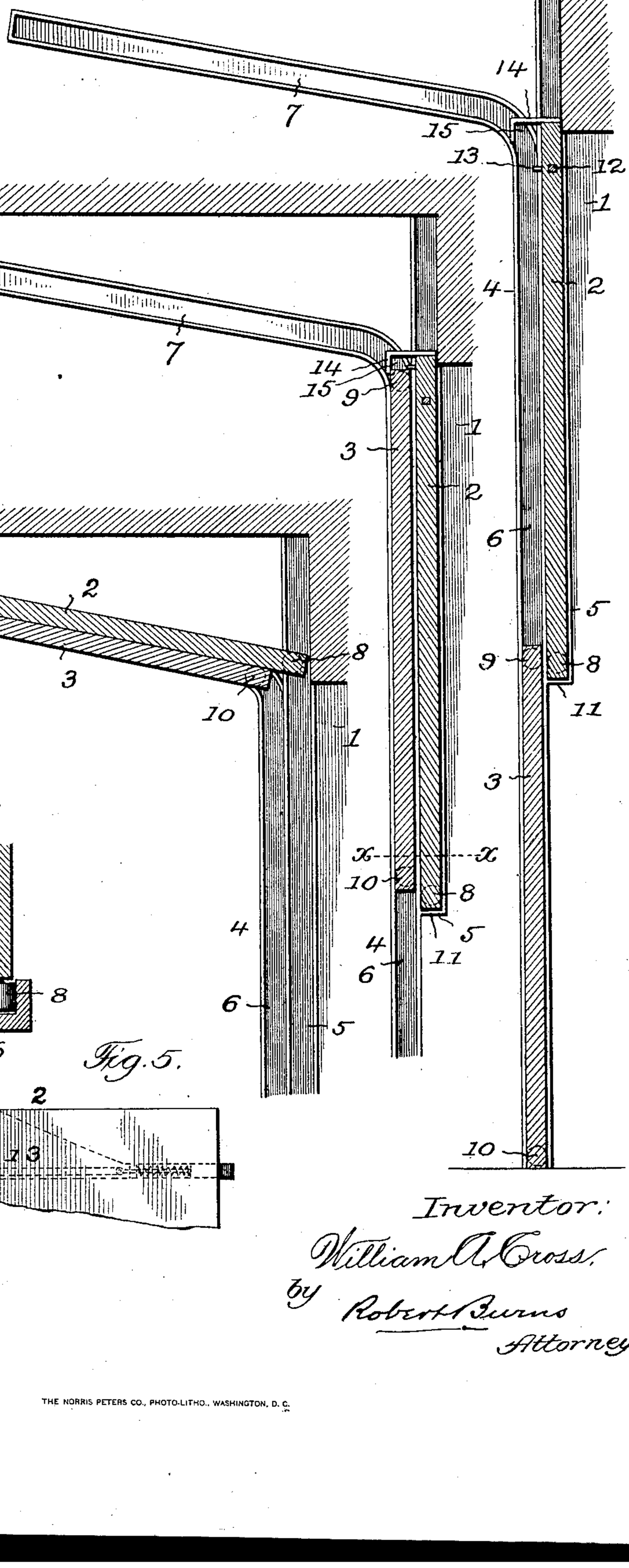


Fig. 2.

Fig. 3.

Fig. 4.

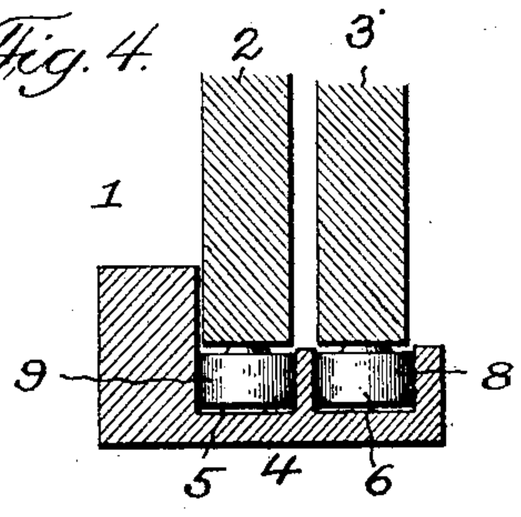
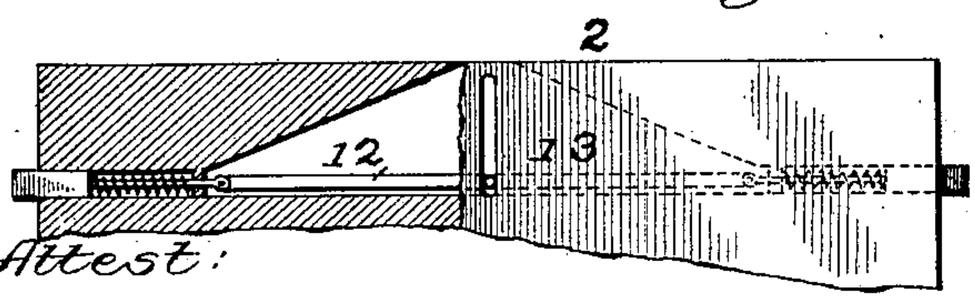


Fig. 5.



Attest:

John Enders

M. H. Holmes.

Inventor:

William A. Cross.

by Robert Burns

Attorney.

No. 762,389. Patented June 14, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM A. CROSS, OF CHICAGO, ILLINOIS.

WAREHOUSE-DOOR.

SPECIFICATION forming part of Letters Patent No. 762,389, dated June 14, 1904.

Application filed August 1, 1903. Serial No. 167,822. (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 Warehouse-Doors, of which the following is a specification.

The present invention relates to doors formed in sections and adapted to move upwardly in guides to uncover the doorway, and has for its object to provide a simple, economical, and efficient construction and arrangement of parts, in which the door-sections in a movement to uncover the doorway are adapted to initially telescope together in a vertical direction and then move into a substantially horizontal position above said doorway to leave a clear opening through the same, 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 a sectional elevation illustrating the door-sections in a position closing the doorway. Fig. 2 is a similar view showing the door-sections in a partially-raised position. Fig. 3 is a similar view showing the door-sections in a fully-raised position. Fig. 4 is a detail horizontal section at line x x, Fig. 2. Fig. 5 is a detail elevation, partly in section, of the upper door-section and illustrating the latch mechanism on said door-section.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 represents the doorway of a building, and 2 and 3 the respective upper and lower sections or halves of the sectional door which forms a closure for such doorway.

4 represents vertical guides secured at the respective sides of the doorway and provided with duplicate guide grooves or channels 5 and 6, which are individual to the respective upper and lower door-sections aforesaid. In the preferred form of the present invention, as shown in the drawings, the upper portions of the outer grooves or channels 6 and the portions of the guideways 4, in which they are formed, are deflected laterally to form overhead and substantially horizontal guideways 7, while upper portions of the inner grooves or channels 5 continue vertical a short distance above the top of the doorway 1, as shown in the drawings. The aforesaid branch guideways 7 may be horizontal, if so desired. They are preferably, however, inclined from a horizontal, as shown in the drawings, for the purpose hereinafter set forth. In the present construction the intersections of the branch guideways 7 with the main vertical guideways 4 are preferably of the curved form shown in the drawings, with a view to avoid any sharp corners which might interfere with an easy upward movement of the door-sections in the operation of opening the door.

8 represents guide-rollers or other equivalent guiding means secured to the lower corners of the upper door-section 2 and adapted for guiding engagement in the guide grooves or channels 5.

9 and 10 are guide-rollers or other equivalent guiding means secured to the upper and lower corners of the lower door-section 3 and adapted for guiding engagement in the guide grooves or channels 6.

11 is a stop limiting the downward movement of the upper door-section 2, so that the top of the same cannot descend below the top of the doorway when such door-section is in a lowered position.

12 is a horizontally-moving latch carried at the upper end of the upper door-section 2 and adapted to ordinarily engage in the guide grooves or channels 5. Such latch will preferably have an operating-arm 13 arranged in the path of the lower door-section 3, so that as such lower door-section is moved upward at the side of the upper door-section operative engagement between the top of the lower door-section and the arm 13 will take place to withdraw the latch 12 from engagement in the guide-grooves 5 in an automatic manner and permit of the hereinafter-described opening movement of the said door-sections.

14 represents one or more flanged plates secured to the upper end of the upper door-sec-

tion 2 and overhanging the same to form a receiving-pocket 15, in which the upper end of the lower door-section is adapted to engage as said lower door-section is moved upward in an opening movement of the present door. In the preferred form of the present invention the pocket 15 is so arranged with relation to the curved intersection of the branch guides 7 with the main vertical guides 4 that the guide-rollers 10 at the upper corners of the lower door-section 3 will in an upward movement of the parts commence to move in said curved intersection before the upper end of said lower door-section fully enters the pockets 15 of the upper door-section to have lifting engagement therewith and so that in the operation of opening the present door as the lower door-section moves upward it will initially engage in the pockets 15 of the upper door-section 2 and at the same time the upper guide-rollers of such lower door-section will commence to travel in said curved intersection of the guides to draw the upper ends of both door-sections away from the doorway. Further upward movement of the lower door-section will bring the upper end of the same fully into the aforesaid pocket and into lifting engagement with the upper door-section, so that with a continued movement of the lower door-section the same will move along the horizontal branch guides 7, carrying the upper door-section along with it, as shown in Fig. 3, to assume a final horizontal position above the doorway, leaving a clear opening through the same.

With the present invention any usual and suitable means for counterbalancing the weight of the door-sections may be employed, as well as any usual and suitable mechanism for operating the same, when from the large size or excessive weight of the door-sections such provisions are indicated.

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

1. The combination of a door formed in two sections, inner and outer guideways therefor arranged at the sides of the doorway, branch guideways connected to the upper ends of the outer guideways and having angular relation therewith, guide-rollers on the upper and lower corners of the lower door-section engaging the outer guideways, guide-rollers on the lower corners of the upper door-section engaging the inner guideways, and means for coupling the upper ends of the door-sections in an opening movement of the door, substantially as set forth.

2. The combination of a door formed in two sections, inner and outer guideways therefor arranged at the sides of the doorway, branch guideways connected to the upper ends of the outer guideways and having angular relation therewith, guide-rollers on the upper and lower corners of the lower door-section engaging the outer guideways, guide-rollers on the lower corners of the upper door-section engaging the inner guideways, and means for coupling the upper ends of the door-sections in an opening movement of the door, the same comprising an overhanging flanged plate forming a receiving-pocket at the upper end of the door-section, substantially as set forth.

3. The combination of a door formed in two sections, inner and outer guideways therefor arranged at the sides of the doorway, branch guideways connected to the upper ends of the outer guideways and having angular relation therewith, guide-rollers on the upper and lower corners of the lower door-section engaging the outer guideways, guide-rollers on the lower corners of the upper door-section engaging the inner guideways, a latch attached to the upper end of the upper door-section and adapted to engage the inner guideways, and means for coupling the upper ends of the door-sections in an opening movement of the door, substantially as set forth.

4. The combination of a door formed in two sections, inner and outer guideways therefor arranged at the sides of the doorway, branch guideways connected to the upper ends of the outer guideways and having angular relation therewith, guide-rollers on the upper and lower corners of the lower door-section engaging the outer guideways, guide-rollers on the lower corners of the upper door-section engaging the inner guideways, a latch attached to the upper end of the upper door-section and adapted to engage the inner guideways, and means for coupling the upper ends of the door-sections in an opening movement of the door, the same comprising an overhanging flanged plate forming a receiving-pocket at the upper end of the upper door-section, substantially as set forth.

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

WILLIAM A. CROSS.

Witnesses:
ROBERT BURNS,
M. H. HOLMES.