

No. 681,953.

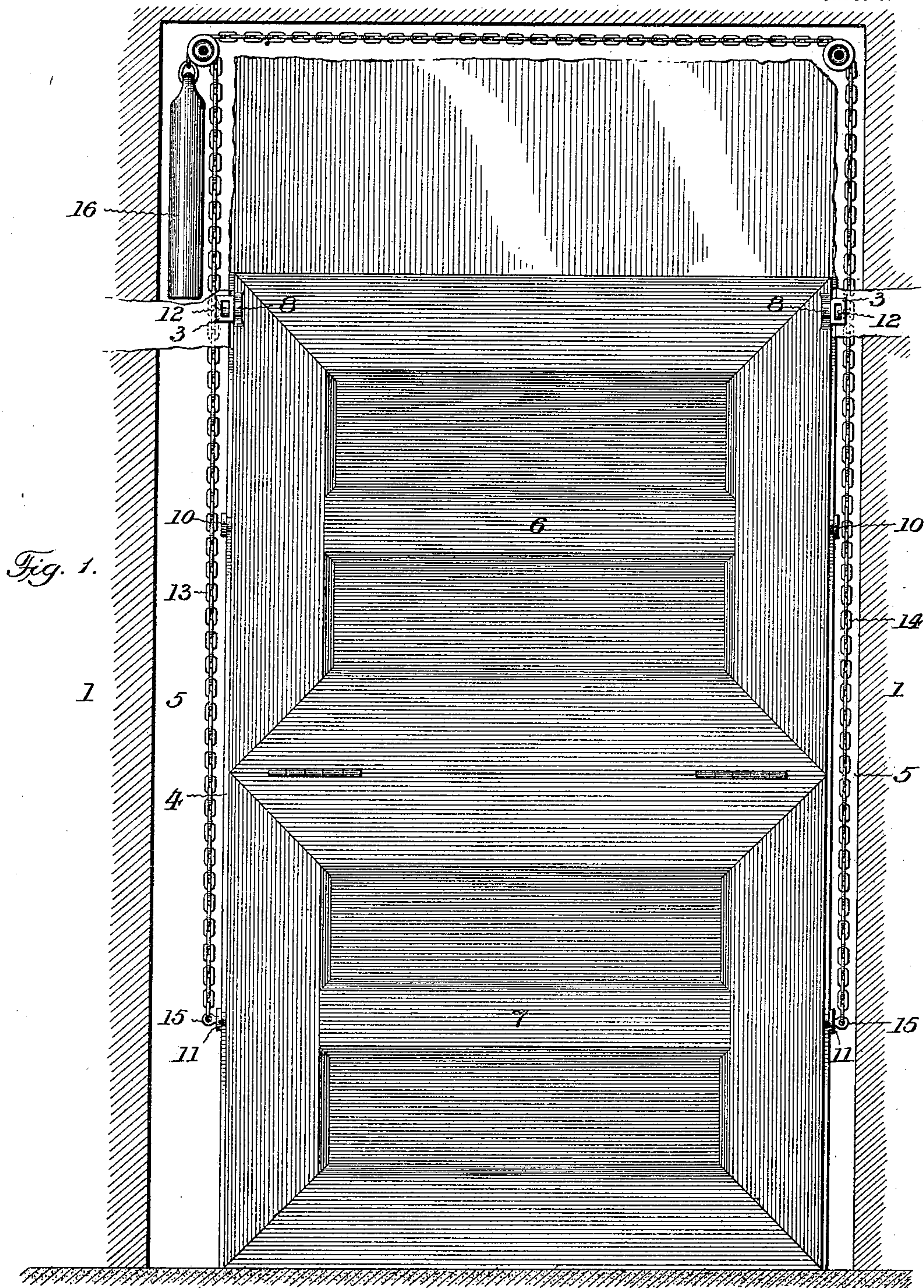
Patented Sept. 3, 1901.

W. A. CROSS.
WAREHOUSE DOOR.

(Application filed Feb. 11, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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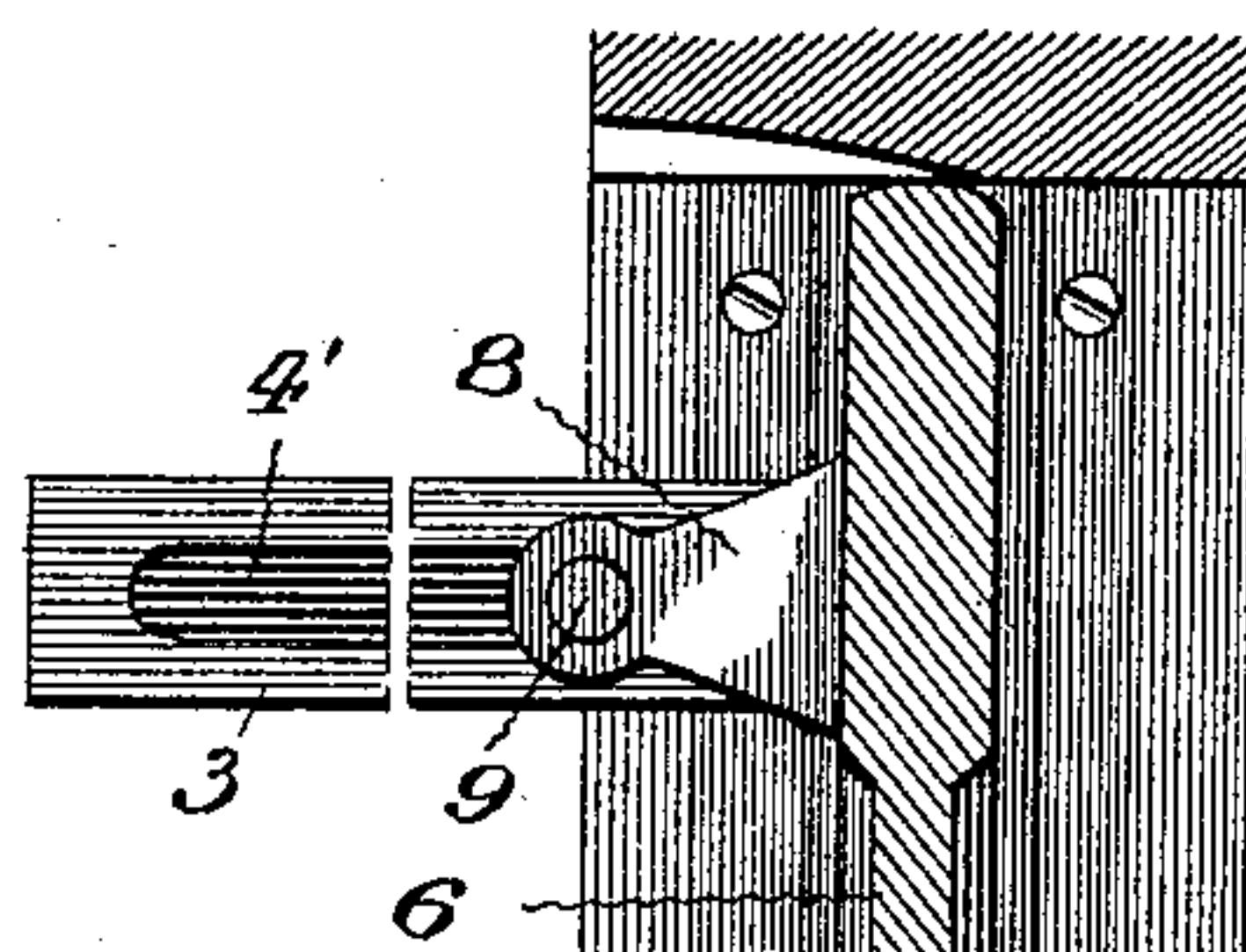
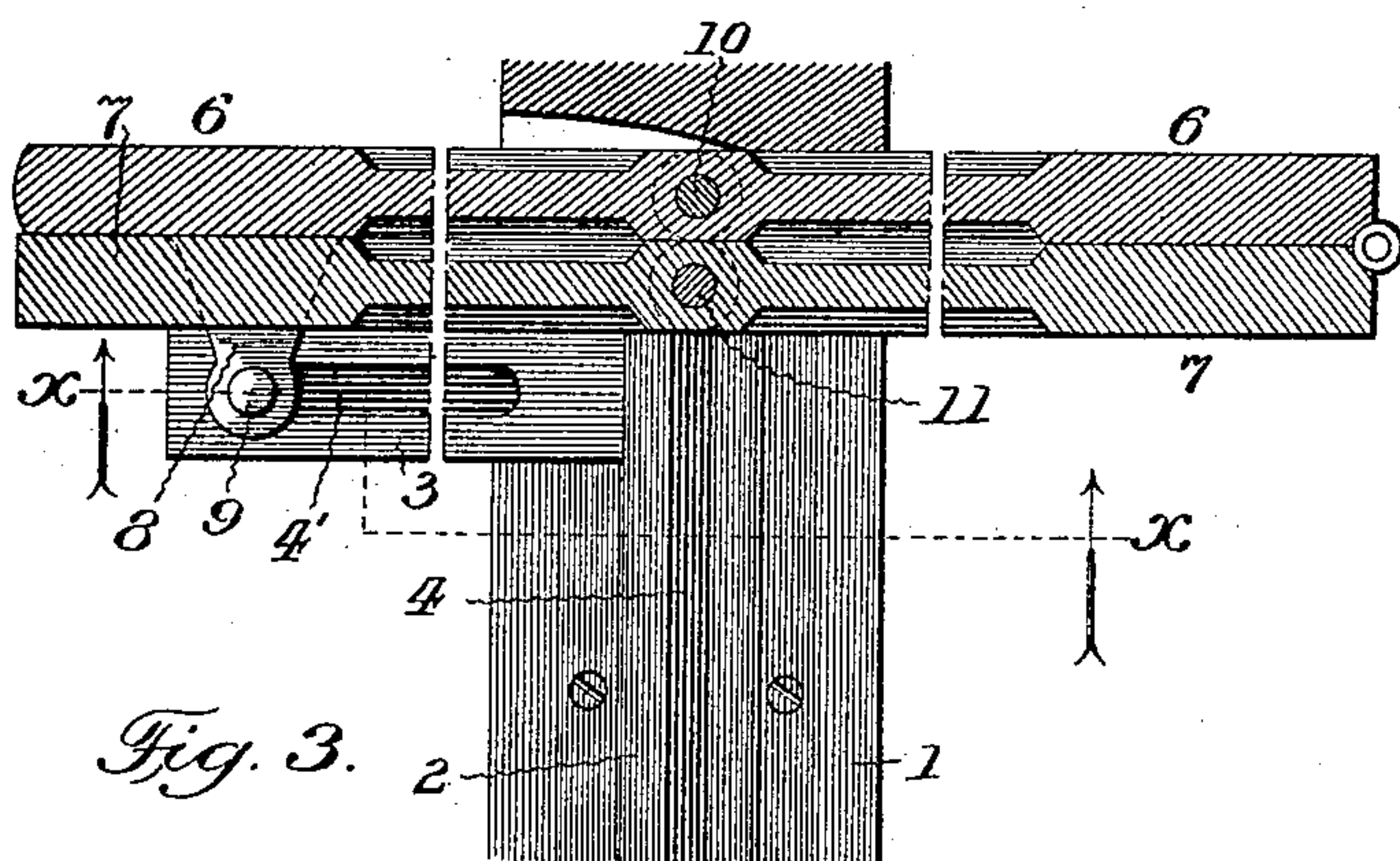
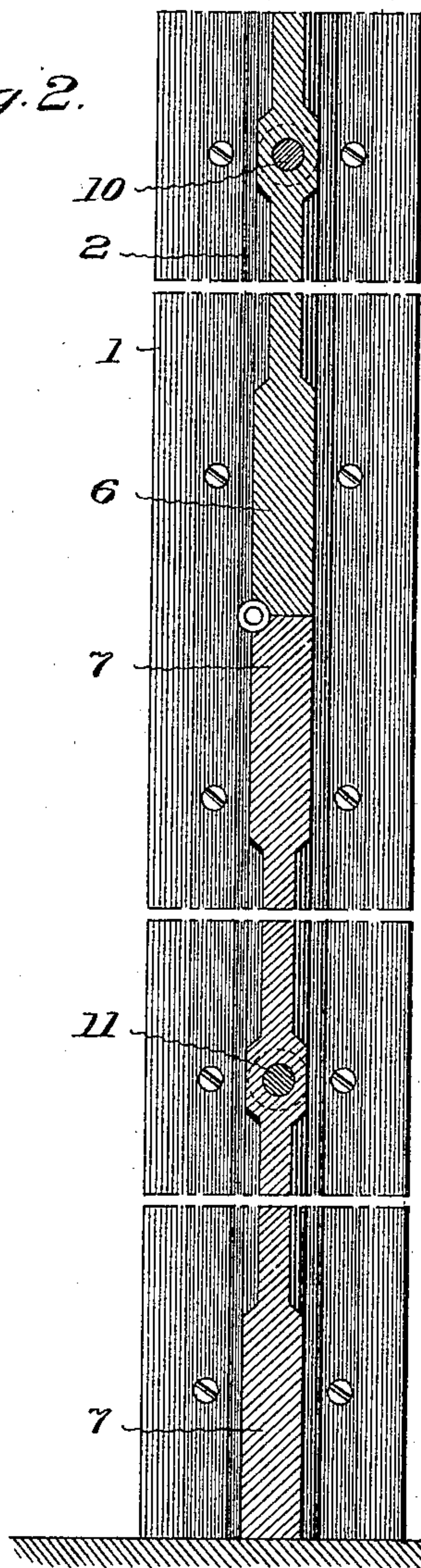
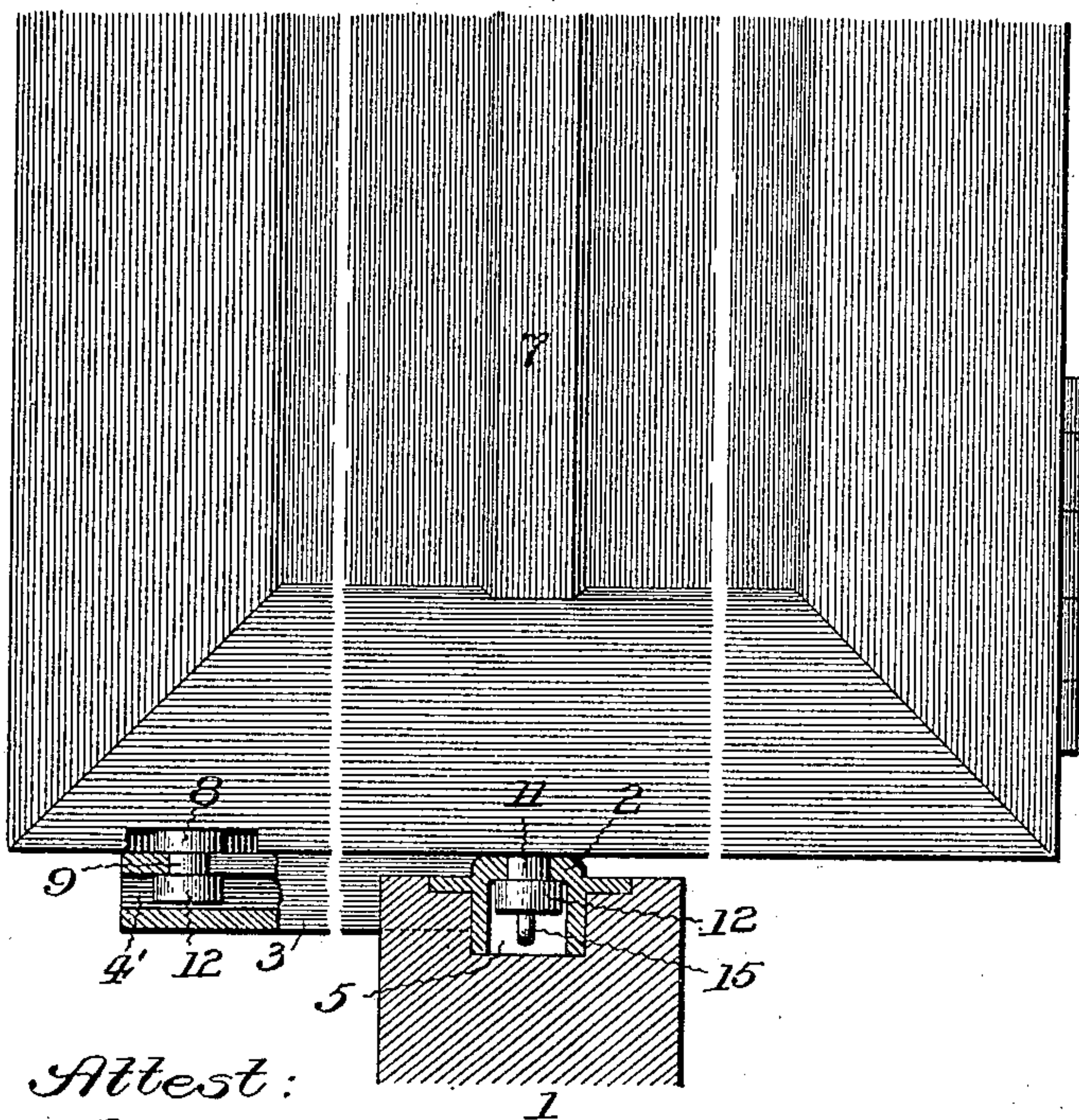


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM A. CROSS, OF CHICAGO, ILLINOIS.

WAREHOUSE-DOOR.

SPECIFICATION forming part of Letters Patent No. 681,953, dated September 3, 1901.

Application filed February 11, 1901. Serial No. 46,824. (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 that type of sectional doors for warehouses in which the door-sections have a vertical movement into a folded condition at the upper end of the doorway.

The object of the present improvement is to provide a simple and effective construction and connection of parts by which an easy and convenient opening or closing of the door can be effected and which affords a strong and substantial attachment of the door to the door-frame, all as will hereinafter more fully appear and be more particularly pointed out in the claims. I attain such object by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation, partly sectionized, illustrating the general arrangement of the present invention and the means for counterbalancing the door. Fig. 2 is a vertical sectional elevation of a warehouse-door constructed in accordance with the present invention and illustrating the closed position of the same; Fig. 3, a detail vertical sectional elevation illustrating the opened position of the door; Fig. 4, a detail horizontal sectional elevation at line *x x*, Fig. 3.

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

Referring to the drawings, 1 represents the doorway or frame, which in the present improved construction is provided with counterpart guide-slides 2 upon each of the vertical sides or posts of the doorway and with counterpart horizontal supplementary guide-slides 3, similarly arranged at each side of the doorway and immediately adjacent to the top of the same. The vertical guide-slides 2, as well as the supplementary horizontal guide-slides 3, will each consist, preferably, of a hollow rectangular-shaped member secured to its particular door-post, as illustrated in Fig. 4 of the drawings, and formed with a

narrow guide-slot 4 and with a wider chamber 5 behind such slot, which chamber is adapted to contain the usual counterbalance-weight and its connections when such provisions are employed in connection with the present construction of doors.

In the present improvement the door proper will comprise an upper and a lower section 6 and 7 of substantially an equal size, hinged together in any usual manner at their meeting edges. The connections between said door-sections and the door-frame will be as follows: The upper door-section 6 will be provided near its upper end with laterally-projecting brackets 8, carrying guide-pintles 9, adapted to engage in the horizontal guide-slots 4' of the supplementary guide-slides 3 and as so arranged are capable of both a pivotal and a horizontal traveling movement. In addition such upper door-section 6 will be provided near its middle with guide-pintles 10, adapted to engage in the vertical guide-slots 4 of the main vertical guide-slides 2 and are also capable of both a pivotal and a vertically-traveling movement. The lower door-section 7 will be provided near its middle with guide-pintles 11, adapted to engage in the vertical guide-slots 4 of the main vertical guide-slides 2 and are also capable of both a pivotal and a vertically-traveling movement. As so constructed and arranged the two door-sections are capable of a combined swinging motion on said pintles and a vertical movement bodily, which is restricted and controlled by the movement of the pintles 10 11 in the vertical guide-slots 4 and additionally in the case of the upper door-section 6 by the engagement of the pintle 9 in the horizontal guide-slots 4'. In my preferred construction the various guide-pintles will preferably be formed with enlarged heads 12 to afford by their engagement with the rear sides of the guide-slots 4 and 4' a more substantial engagement and lessen the liability to disengagement in the continued operation of the door. In cases where it is found desirable to counterbalance the weight of the door by the usual counterbalance-weights—as, for instance, in the heavier class of warehouse-doors—the same when used in connection with the present door construction will have its flexible or chain connections 13 and

14 attached to the guide-pintles 11 of the lower door-section 7 by means of attaching-eyes 15 or other usual and like provision, as illustrated in Figs. 1 and 4. In this connection it is preferable to use a single counter-balance-weight 16 common to both flexible or chain connections 13 and 14, as the same will insure in a very perfect manner the even and uniform movement of both sides of the door in the opening and closing movement of the same.

With the improved construction and arrangement of parts above described and in the operation of opening the door the operator will either push or pull, according to which side of the door he is at, horizontally upon the door at a point adjacent to the hinge connection between the two door-sections 6 and 7 to force the door-sections into an inclined position with relation to each other and into a partially-opened condition, after which by pushing vertically against the lower door-section a fully-opened condition of the door can be attained, as shown in Fig. 3. In the movement of the upper door-section during the opening operation such door-section will have its upper end guided in a horizontal plane by the horizontal guide-slides 3, and in this connection it is a material part of the present improvement that the vertical guide-slots 4 of the vertically-extending guide-slides 2 extend to near the extreme height of the doorway and past the horizontal guide-slides 3 in order that with the present sectional door formation the door-sections may fold closely together in manner indicated in Fig. 3.

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 frame or way, vertical guide-slides at the sides of the same, supplementary guide-slides arranged horizontally near the top of the doorway, a door formed in two sections hinged together, the upper door-section provided near its upper end with guide-pintles engaging the horizontal guide-slides and near its middle with guide-pintles engaging the vertical guide-slides and the lower door-section provided with guide-pintles near its middle engaging the vertical guide-slides, substantially as set forth.

2. The combination of a door frame or way, horizontal guide-slides arranged at the sides and adjacent to the top of the doorway, vertical guide-slides arranged at the sides of the doorway and extended up past the horizontal guide-slides, a door formed in two sections hinged together, the upper door-section provided near its upper end with guide-pintles engaging the horizontal guide-slides and near its middle with guide-pintles engaging the vertical guide-slides, and the lower door-section provided with guide-pintles near its middle engaging the vertical guide-slides, substantially as set forth.

3. The combination of a door frame or way, vertical guide-slides at the sides of the same, supplementary guide-slides arranged horizontally near the top of the doorway, a door formed in two sections hinged together, the upper door-section provided near its upper end with guide-pintles engaging the horizontal guide-slides and near its middle with guide-pintles engaging the vertical guide-slides, the lower door-section provided with guide-pintles near its middle engaging the vertical guide-slides, and attaching means on the guide-pintles of the lower door-section for the chain connection of suitable counterweights, substantially as set forth.

4. The combination of a door frame or way, horizontal guide-slides arranged at the sides and adjacent to the top of the doorway, vertical guide-slides arranged at the sides of the doorway and extended up past the horizontal guide-slides, a door formed in two sections hinged together, the upper door-section provided near its upper end with guide-pintles engaging the horizontal guide-slides and near its middle with guide-pintles engaging the vertical guide-slides, the lower door-section provided with guide-pintles near its middle engaging the vertical guide-slides, and attaching means on the guide-pintles of the lower door-section for the chain connection of suitable counterweights, substantially as set forth.

Signed at Chicago, Illinois, this 29th day of November, 1900.

WILLIAM A. CROSS.

Witnesses:

ROBERT BURNS,
HENRY A. NOTT.