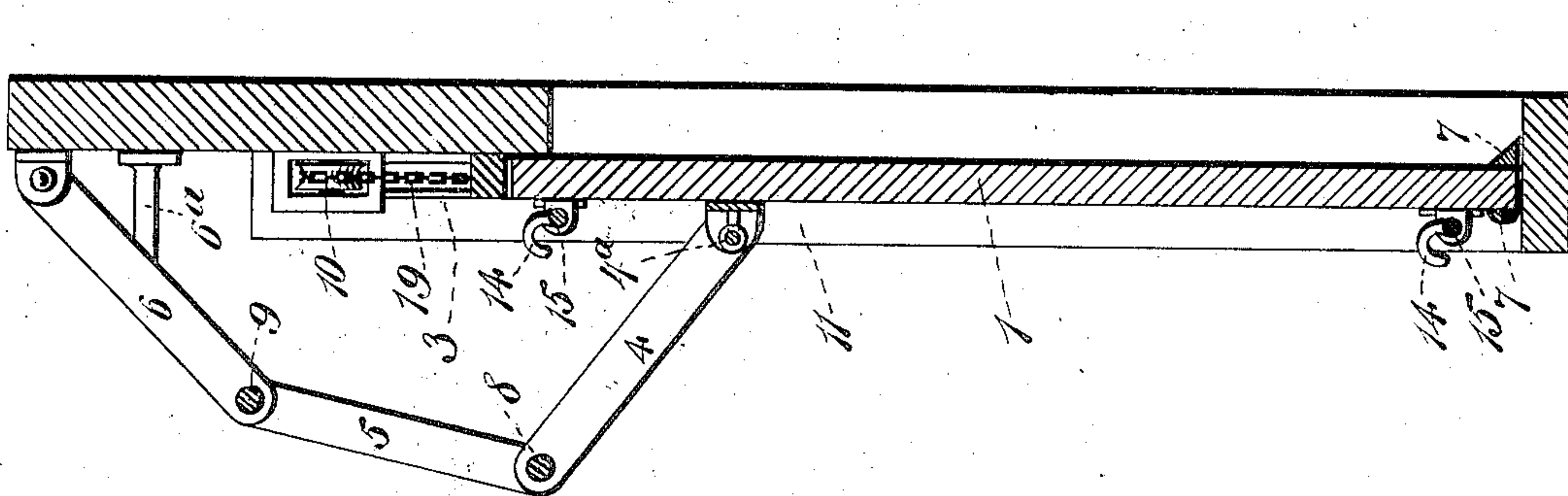
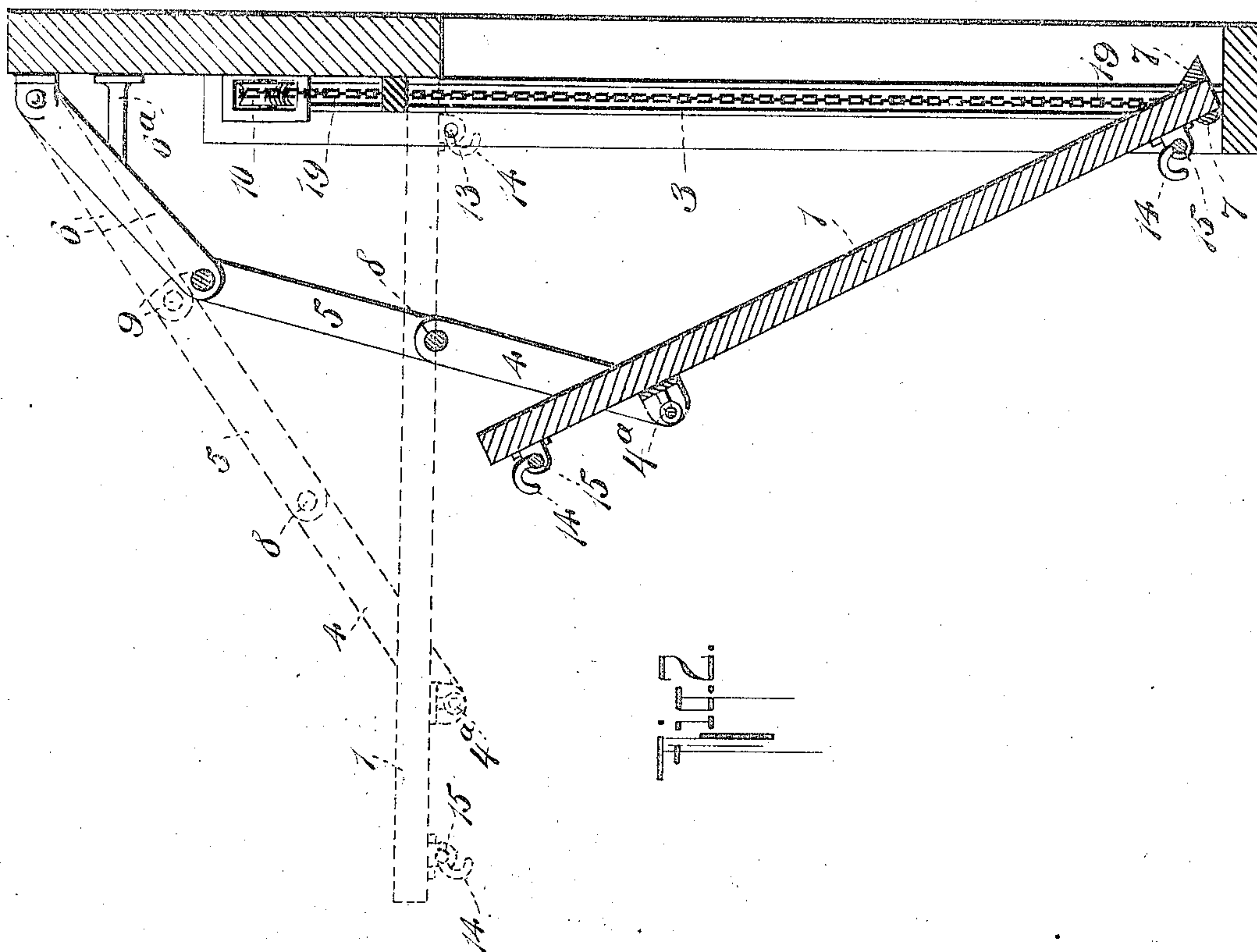


No. 875,306.

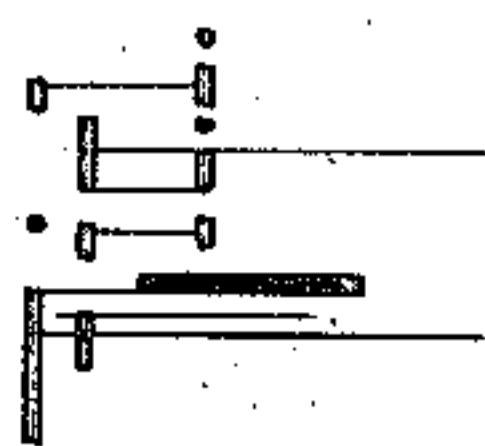
PATENTED DEC. 31, 1907.

J. G. WILSON.
WAREHOUSE DOOR.
APPLICATION FILED FEB. 10, 1906.

2 SHEETS—SHEET 1.



WITNESSES:
Julius H. Smith
John A. Kellenbeck



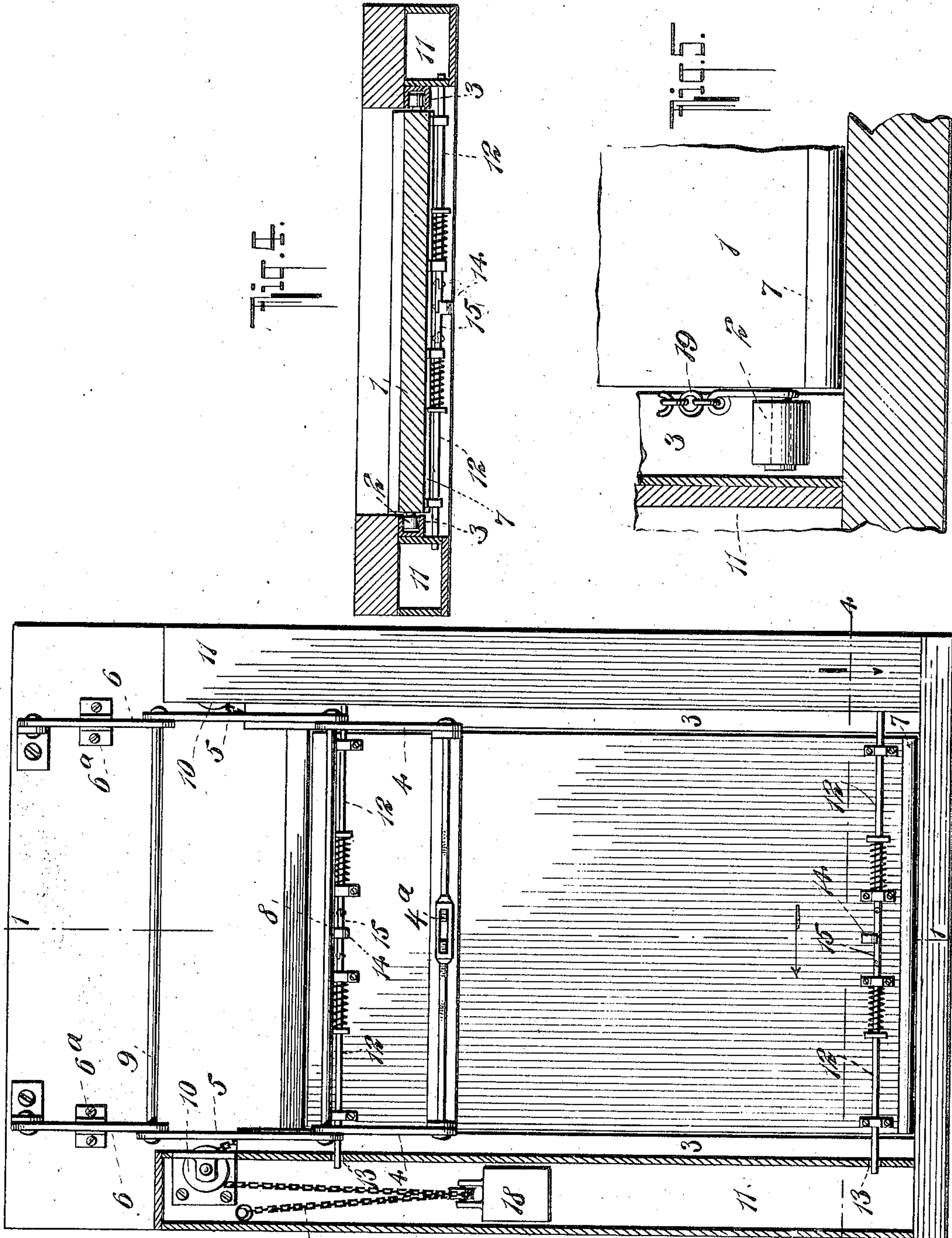
INVENTOR
James E. Wilson
BY
Briesen & Knauth
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2 SHEETS—SHEET 2.



WITNESSES:
Julius H. Hutz
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INVENTOR
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UNITED STATES PATENT OFFICE.

JAMES G. WILSON, OF NEW YORK, N. Y.

WAREHOUSE-DOOR.

No. 875,306.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed February 10, 1906. Serial No. 300,389.

To all whom it may concern:

Be it known that I, JAMES G. WILSON, a subject of the King of Great Britain, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Warehouse-Doors, of which the following is a specification.

The present invention relates to a vertically swinging door, and its object is to provide means for easily raising and lowering such a door, and for maintaining it in its open position without unduly straining it and putting it out of shape.

In the accompanying drawings Figure 1 is a vertical transverse section on the line 1—1 of Fig. 3, showing the door in a closed position. Fig. 2 is a vertical transverse section showing the door partly open and preparatory to being raised into the position shown in dotted lines; Fig. 3 is a partially broken away front elevation showing the door closed; Fig. 4 is a horizontal transverse section on the line 4—4 of Fig. 3, and Fig. 5 is an enlarged fragmentary detail vertical section through the lower corner of the door showing the antifriction roller and a portion of the chain lying in the guide grooves.

Referring to the drawings, 1 represents a door, provided near its lower end with guide rollers 2, sliding in vertical guides 3 forming a part of the doorposts. The guides are preferably U-shaped in cross section, as shown.

The door 1 comprises a single section or piece of the required dimensions to close the doorway. Near the upper end of the door preferably at a point three-quarters of its height, I place a truss 4^a horizontally across it and projecting at either side beyond the outer edges and to the extreme ends of this truss I pivotally attach a pair of links 4, of such a length that they will overreach and extend beyond the top of the door. To each of these links is pivotally attached a link 5, to each of which in turn is pivoted a link 6. The pivot connections may be formed by rods 8 and 9, provided with suitable retaining heads. Instead of attaching links 5 directly to links 4, they may be attached to the rod 8 at any intermediate point between the two said links 4, and a similar arrangement can be made with the connections between links 5 and 6. Such a departure from the straight line in these link connections will not interfere with the object of my invention. A rod may be used for the pivoted connections of link 5—6 and terminal connection on

door frame or wall. The rods serve also to brace the various links and to prevent buckling or sidewise displacement. One of the objects in the employment of rods instead of pintles for connecting the links 4, 5 and 6 is the provision for auxiliary links which may be placed at any point along the width of the door, the top links corresponding to links 6 being attached pivotally either to an anchor in the wall or to a horizontal rod similar to rods 8 and 9. Upon the bottom rail of my door I attach reinforcements 7 to strengthen it against the natural tendency to sag when raised and lying in a horizontal position. Lugs 6^a are attached to the upper part of the door frame to prevent link 6 from at any time assuming a position so near the vertical as to interfere with the proper operation of the device. This lug may, of course, be attached to the link 6, instead of the door frame.

Counter-balance weights 18 are hung in the usual manner on cords or chains 19 passing over pulleys 10, and attached at one end to the interior of the upper part of the slide box 11, and at its other end to the lower portion of the door, preferably to the pintle which carries the guide roller 2. A counter-balance spring such as is well-known in the art, may be employed in place of the weights.

The operation of the device is as follows: The door, when in the closed position shown in Fig. 1, is pulled inwardly until it assumes the position shown in full lines in Fig. 2. Then the door is raised into the position shown in dotted lines in Fig. 2, by exerting an upward pull upon the lower portion of the door by hand, or by mechanism acting directly on the roller. The door may be locked in this position, as hereinafter described, in order to guard against accidental displacement, but in the construction shown it will remain in that position without the use of additional retaining means. When it is desired to close the door the operation is reversed, the door being lowered by pulling its lower edge downward, or by releasing the counterweights or spring pressure, thus permitting the door to drop by its own weight.

The door may be locked when in its closed or in its raised positions, in any desired manner. In my drawings I have shown two spring pressed bolts 12, 12 mounted near the bottom of the door, adapted automatically to lock the door into position when in its raised or in its closed position, by sliding into

holes 13 provided in the jambs, near the top and the bottom of the doorway. The bolts may be released by pulling hook 14 on the toggle joint 15 upward or downward, thus pulling back the bolts 12. A similar locking device may be provided near the top if desired, so as to double-lock the door in its closed position.

The particular advantage of my construction is that it enables a door to be supported near its outer (upper) end when in the horizontal, open position, without unduly straining it and in a manner which will prevent sagging or bending under its own weight. The door when fully open will be practically resting upon the truss 4^a along its whole width and will remain perfectly flat while its lower end will be kept in the same horizontal plane by reason of its reinforced bottom rails and the slide bolts 12, 12. Another advantage of my construction is that it enables the door to be closed at the top, instead of keeping it open as in some other constructions, in which single links are employed; an arrangement which makes it impossible for rain to enter in case the door is made to open outwardly.

By locking my door automatically when in its open or raised position I prevent an accidental dropping of the door by breaking of the counterweight chains or otherwise:

I claim:

1. The combination of a door having sliding and pivotal connections with slide-ways at the sides of the same, and a plurality of links pivotally connected in series, one end of the series being pivotally jointed to the door, and the other end being pivotally jointed to the door frame above the door, and means for holding the links away from the door frame substantially as and for the purpose described.

7. The combination of a door having sliding and pivotal connections with slide-ways at the sides of the same, and two or more supports, each composed of a plurality of links, pivotally connected, the pivots being formed of rods connecting the various series, one end of each series being pivotally jointed to the door and the other end of each series to the door frame above the door, as and for the purpose described.

3. The combination of a door having sliding and pivotal connections with slide-ways at the sides of the same, and two or more supports, each composed of a plurality of links, pivotally connected, the pivots being formed by rods connecting the various series, one end of each series being pivotally jointed to the door and the other end of each series to the door frame or wall above the door, and means for holding the support away from the

door frame, substantially as and for the purpose described.

4. The combination of a door having sliding and pivotal connections with slide-ways at the sides of the same, and three links pivotally connected in series, one end of the series being pivotally jointed to a truss attached to the door and the other end to the door frame or wall above the door, substantially as and for the purpose described.

5. The combination of a door having sliding and pivotal connections with slide-ways at the sides of the same, and three links pivotally connected in series, one end of the series being pivotally jointed to the door and the other end being pivotally jointed to the door frame above the door, and means for holding the links away from the door frame substantially as and for the purpose described.

6. The combination of a door having sliding and pivotal connections with slide-ways at the sides of the same, and two or more supports, each composed of three links, pivotally connected, the pivots being formed of rods connecting the various series, one end of each series being pivotally jointed to the door and the other end of each series to the door frame above the door, as and for the purpose described.

7. The combination of a door having sliding and pivotal connections with slide-ways at the sides of the same, and two or more supports, each composed of three links, pivotally connected, the pivots being formed by rods connecting the various series, one end of each series being pivotally jointed to the door and the other end of each series to the door frame or wall above the door, and means for holding the support away from the door frame, substantially as and for the purpose described.

8. The combination of a door having sliding and pivotal connections with slide-ways at the sides of the same, and two or more supports, each composed of three links, pivotally connected, the pivots being formed by rods connecting the various series, one end of each series being pivotally jointed to the door and the other end of each series to the door frame or wall above the door, means for holding the support away from the door frame, and means for automatically locking the door when in its raised position, substantially as and for the purpose described.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAS. G. WILSON.

Witnesses:

W. E. DUNCANSON,
JOHN A. KEHLENBECK.