

No. 898,224.

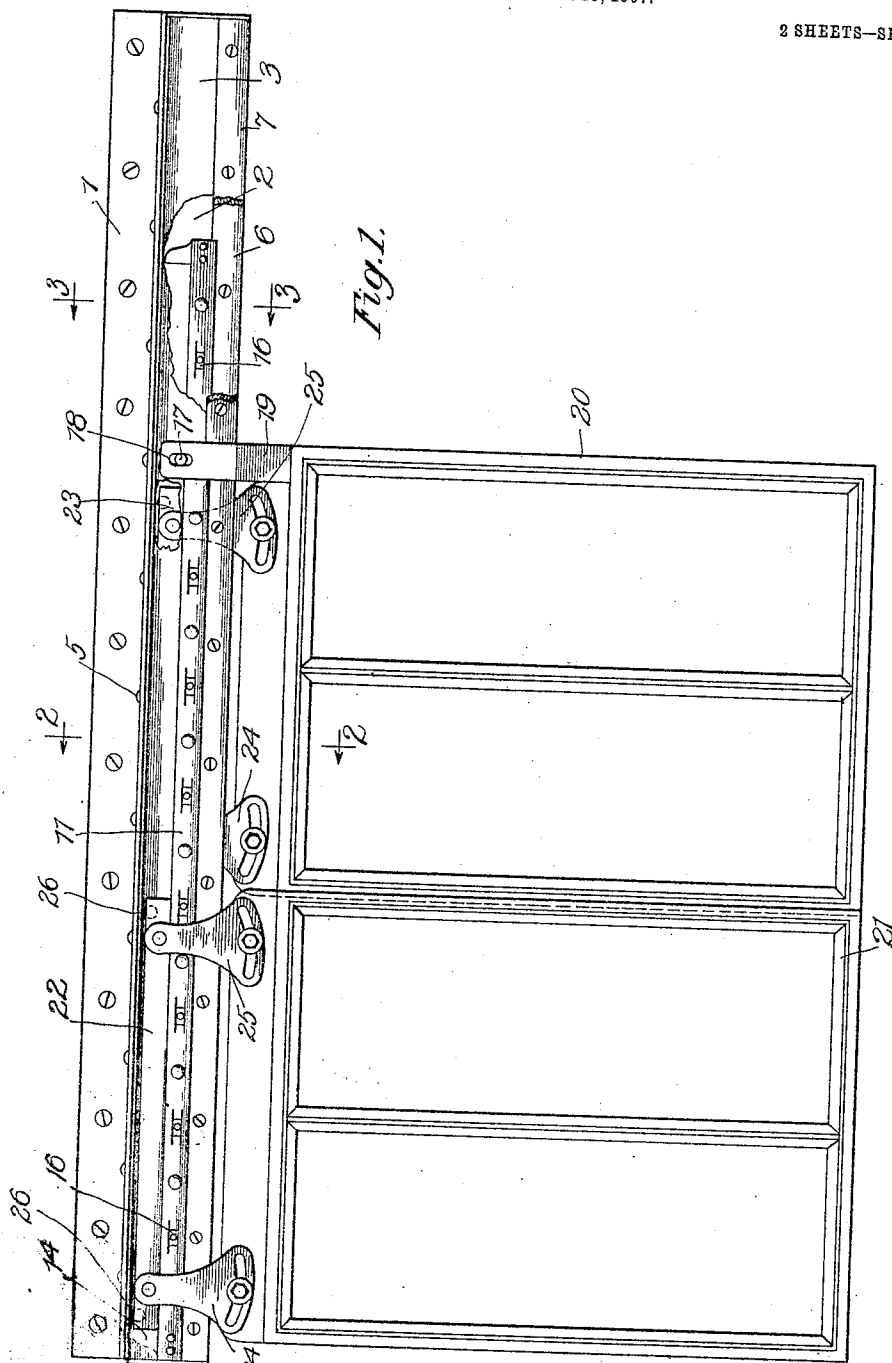
PATENTED SEPT. 8, 1908.

J. L. KAIL.

HANGING MECHANISM FOR laterally MOVABLE DOORS.

APPLICATION FILED NOV. 25, 1907.

2 SHEETS—SHEET 1.



Witnesses:
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Charles J. Schmidt

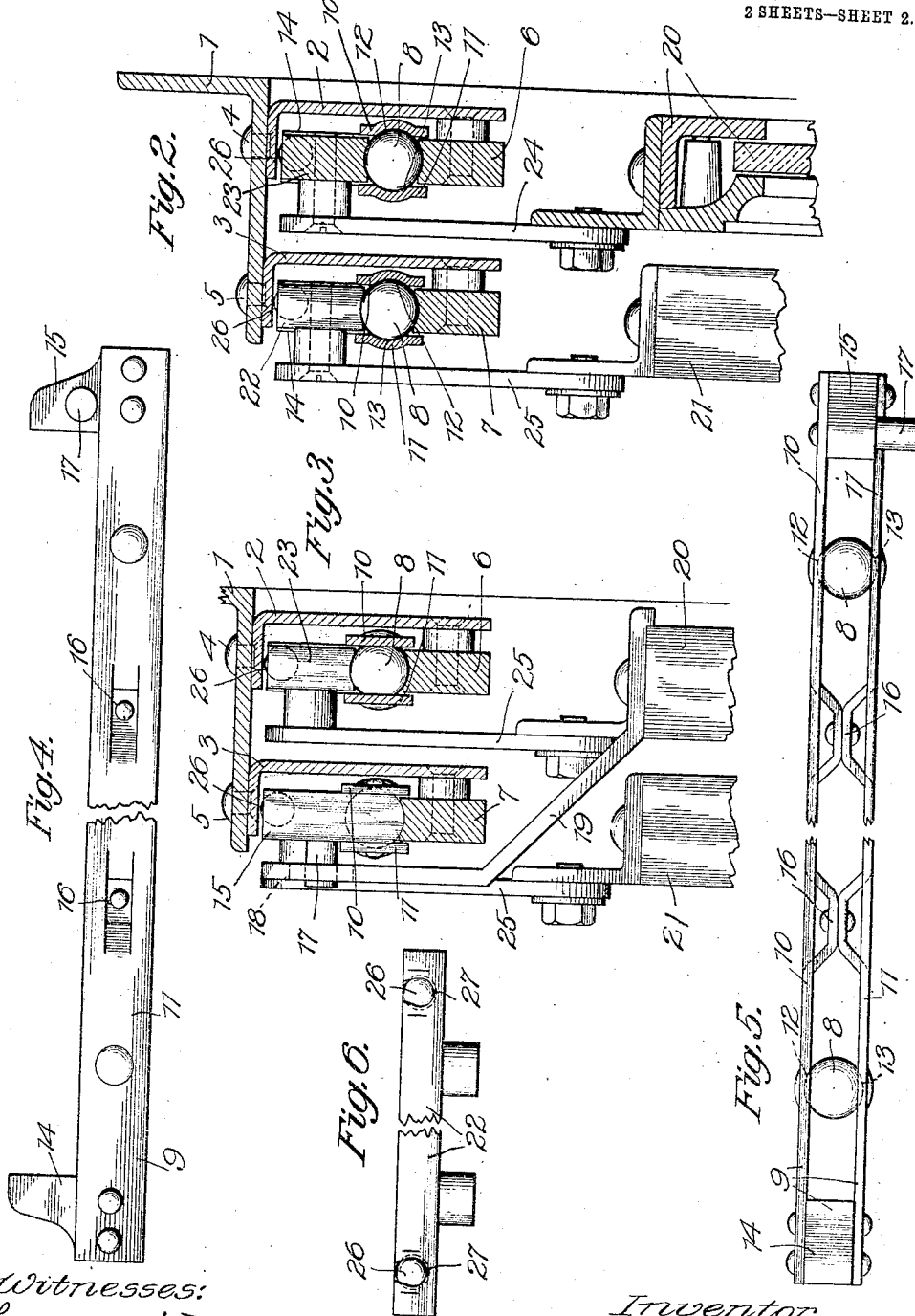
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UNITED STATES PATENT OFFICE.

JACKSON L. KAIL, OF CHICAGO, ILLINOIS, ASSIGNOR TO WINSLOW BROTHERS COMPANY,
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HANGING MECHANISM FOR LATERALLY-MOVABLE DOORS.

No. 898,224.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed November 25, 1907. Serial No. 403,673.

To all whom it may concern:

Be it known that I, JACKSON L. KAIL, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Hanging Mechanism for Laterally-Movable Doors, (Case 2,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to laterally movable doors, particularly to improved means associated therewith whereby a plurality of doors may be moved upon the actuation of one of such doors. Heretofore it has been customary in such cases to employ link mechanism connected to the doors so that when one door was moved there would be a relative movement of the other doors.

The object of my invention is to eliminate such a construction whereby a plurality of links have been used, and employ a simple device whereby the doors are connected in such a manner that when one door is actuated there will be a relative movement of the other doors associated therewith.

Broadly my invention presents features which are an improvement over the Patent No. 865,046, granted to me September 3, 1907, for means for hanging laterally movable doors.

My invention will be clearly understood by reference to the accompanying drawings, in which

Figure 1 is an elevation view showing mechanism embodying the principles of my invention; Fig. 2 is a sectional view taken on line 2-2, Fig. 1; Fig. 3 is a sectional view taken on line 3-3, Fig. 1; Fig. 4 is an elevation view of a retaining carriage for holding ball bearings; Fig. 5 is a top view of Fig. 4; Fig. 6 is a top view of bars which are adjustably secured to the doors.

In order to form a suitable supporting member for the doors, there is a frame 1 which may be suitably secured to a support, to this frame downwardly extending bracket members 2 and 3 are secured preferably by rivets 4 and 5. To the lower portions of the brackets 2 and 3 are secured grooved tracks 6 and 7; these tracks being of the same length and preferably riveted to said brackets.

It is desirable that there should be as little friction as possible when the doors are moved from one position to another, and I have provided means consisting of ball bearings 8, 8 held in a frame 9, there being a frame for each of the tracks 6 and 7. The frames may preferably consist of side bars 10 and 11 which are stamped so as to have recesses 12 and 13, respectively, and are secured together at their ends by means of spacing blocks 14 and 15 and at intermediate points are riveted together through the inwardly extending portions 16, 16. In constructing the retaining frames in this manner the necessary rigidity is obtained to properly hold the ball bearings 8, 8 in position. The spacing block 15 of the frame 9 associated with one door is provided with an extension 17 which engages a slot 18 in a member 19 which is secured to the door. Above the retaining frames 9 and engaging the ball bearings 8, 8 are bars 22, 23 which are disposed in parallel planes and connected to the doors by means of adjusting members 24, 25, these members permitting vertical adjustment of the doors. It will be apparent that upon movement of the door 21 the retaining frame 9 associated therewith will move in a corresponding direction but at just one-half the speed of the door, and upon such movement the door 20 will also be actuated by means of the connection through the member 19, will move at the same rate as the retaining frame or carriage associated with the door 21.

As clearly shown in Fig. 1, the retaining frame which holds the ball bearings that engage the track 6 is of such a length that when the door is actuated it will travel at just one-half the speed of said door, the result being that upon the movement of the door 21 the adjacent door and the parts associated therewith will travel so that both the retaining frames will engage a stop at the right end of the supporting frame 1 at approximately the same time. During this movement in some cases there may be an obstruction in the path of the doors which may cause binding or tipping of the doors, and consequently the bars 22 and 23 may rub against the members 2 and 3 and thus cause unnecessary friction. To guard against such friction I have placed in the bars 22 and 23 at each end thereof, suitable anti-frictional members or spherical

balls 26, 26, these being placed in openings 27, 27 which are bored or otherwise drilled in said bars, these anti-frictional members being held in their respective openings by up-
5 setting the material around the openings.

It will be apparent that by the employment of my invention the use of links or other cumbersome means for association with doors is entirely eliminated, and the
10 mechanism employed is of such simple construction as to be quickly associated with laterally movable doors and similar structures.

I claim as new and desire to secure by Letters Patent:

1. In a structure of the class described, the combination of two tracks disposed in parallel planes, means for supporting said tracks, retaining frames disposed above said tracks,
20 ball bearings held in said retaining frames and adapted to engage said tracks, bars associated with said tracks and adapted for riding upon said ball bearings, a door secured to each of said bars, and a connecting member
25 fastened to one of said doors and adapted to engage the retaining frame associated with the other door, movement of said door causing a relative movement of the frame associated therewith and a consequent movement
30 of the adjacent door.

2. In a structure of the class described, the combination of grooved tracks disposed in parallel planes, means for supporting said tracks, retaining frames disposed above said
35 tracks, ball bearings held in said retaining frames and adapted to engage said tracks, bars associated with said tracks and adapted for riding upon said ball bearings, a door secured to each of said bars, a connecting member
40 fastened to one of said doors and adapted to engage the retaining frame associated with the other door, movement of one of said doors causing a relative movement of the frame associated therewith and a consequent
45 movement of the adjacent door, and means

in said bars for preventing friction with the supporting means.

3. In a structure of the class described, the combination of two tracks disposed in parallel planes, means for supporting said tracks,
50 retaining frames disposed above said tracks, ball bearings held in said retaining frames and adapted to engage said tracks, bars associated with said tracks and adapted for riding upon said ball bearings, a door secured to
55 each of said bars, and a connecting member fastened to one of said doors and having an elongated slot adapted to engage a pin extending from the retaining frame associated with the other door, movement of said door
60 causing a relative movement of the frame associated therewith and a consequent movement of the adjacent door.

4. In a structure of the class described, the combination of two grooved tracks disposed
65 in parallel planes, means for supporting said tracks, retaining carriages disposed above each of said tracks, spherical rollers held in recesses in said retaining carriages and adapted to engage said tracks, bars disposed
70 above each of said retaining carriages and adapted to engage the spherical rollers, and a connecting piece fastened to one of said doors, one end of said connecting piece having an elongated slot for engaging a pin
75 extending from one of said retaining carriages, movement of the door associated with said carriage causing a relative movement of the adjacent door, each of said doors being made
80 adjustable, and spherical balls held in said bars for preventing friction with the supporting means.

In witness whereof, I hereunto subscribe my name this 23rd day of November A. D., 1907.

JACKSON L. KAIL.

Witnesses:

LEONARD W. NOVANDER,
CHARLES J. SCHMIDT.