A. THEYSKENS.

DOOR HANGER.

APPLICATION FILED MAR. 23, 1907.

940,088.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

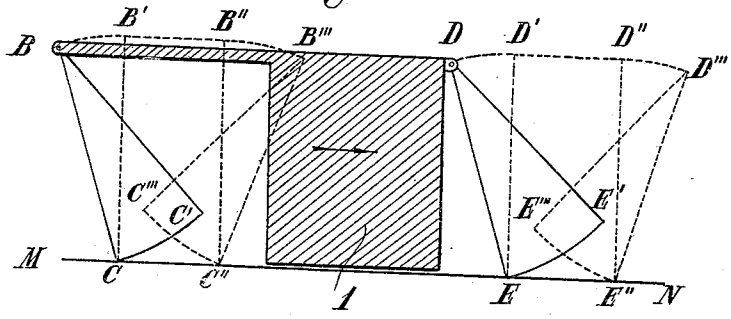


Fig. 2.

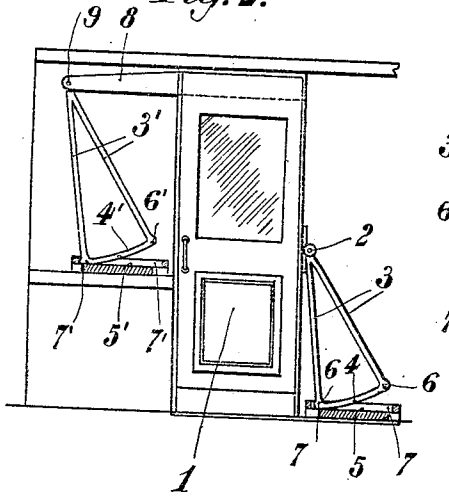


Fig. 3.

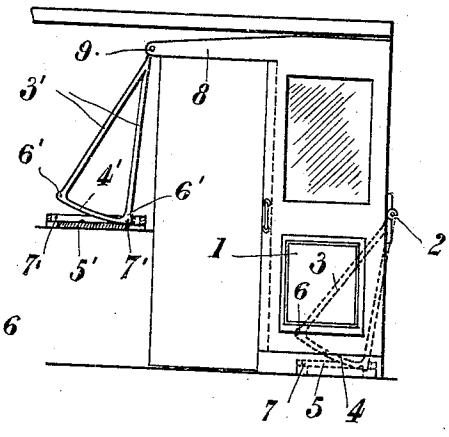
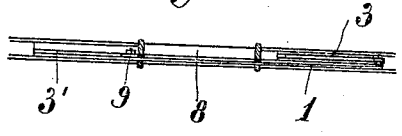


Fig. 4.



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DOOR HANGER.

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940,088. Patented Nov. 16, 1909.

2 SHEETS—SHEET 2.

Fig. 5.

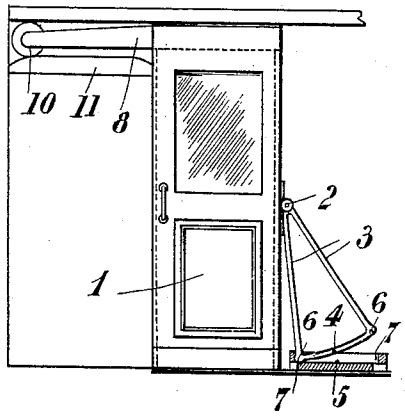


Fig. 6.

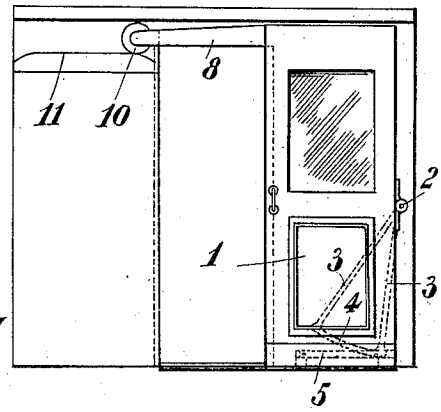


Fig. 8.

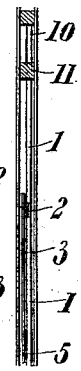


Fig. 7.

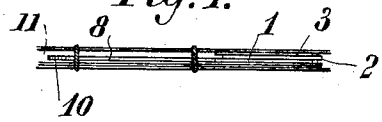


Fig. 10.

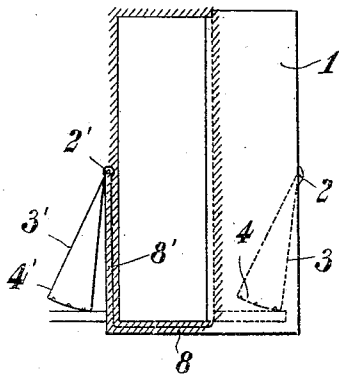
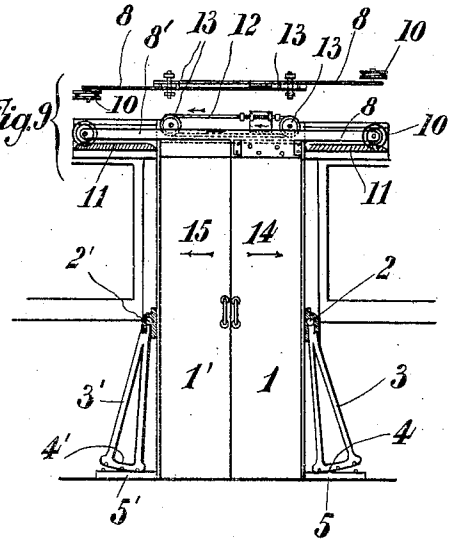


Fig. 9.



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UNITED STATES PATENT OFFICE.

ALPHONSE THEYSKENS, OF TESTELT, BELGIUM.

DOOR-HANGER.

940,088. Specification of Letters Patent. Patented Nov. 16, 1909.

Application filed March 23, 1907. Serial No. 364,147.

To all whom it may concern:

Be it known that I, ALPHONSE THEYSKENS, engineer, a subject of the Belgian King, and residing at Testelt, Belgium, have invented new and useful Improvements in Door-Hangers; and I do hereby declare the following to be a full, clear, and exact description of the same.

My present invention relates to door-hangers, and has for its object to provide sliding-doors, wherein the door-leaf (or leaves) is moved toward the extreme positions only, through arcs of a circle of small amplitude around its points of suspension, the displacement of the leaf between said arcs of the circle being effected horizontally by means of the rolling of the arc of one or two sectors on a horizontal plane or rail.

In the accompanying drawing, I have shown several forms of embodiments of my invention, and in these drawings:—Figure 1 is a diagrammatical view of a single door showing the extreme and intermediate displacements of same. Fig. 2 shows the elevation of a single door supported by two oscillating sectors in closed position. Fig. 3 is a view of the same door when open. Fig. 4 is a corresponding view in plan. Fig. 5 is a view of a single door supported by one oscillating sector in its closed position. Fig. 6 is a view of the same door open. Fig. 7 is a corresponding view in plan. Fig. 8 is a vertical section of this door. Fig. 9 is an elevation of a two leafed door constructed according to my invention. Fig. 10 shows a modification of the door shown in Fig. 2.

As shown in Fig. 1, the door-leaf 1 is carried by two sectors B C C′ and D E E′ pivoted at their centers B and D to the said leaf, and two curved parts C C′ and E E′ each of which can roll on the horizontal plane M N. The arcs of these sectors have a development equal to the path through which the leaf 1 is moved horizontally. If the leaf 1 is displaced in the direction of the arrow (Fig. 1), the two sectors will first turn round the points C and E until their apices B and D are at B′ and D′, that is to say, vertically above the said points. At this moment, the arcs C C′ and E E′ of the sectors roll on the horizontal plane M N and maintain the points B′ and D′ at an equal distance from the latter, until these points are at B″ and D″, that is, vertically above the points C″ and E″. The points B″ and D″ now describe in descending the arcs of circle B″ B‴ and D″ D‴ around the points C″ and E″ and the two sectors will occupy the positions shown by dotted lines B‴ C″ C‴ and D‴ E″ E‴, the door-leaf then being in the position 1′. The door can be displaced to any extent according to the development or extension chosen of the arcs of the sectors.

In Figs. 2, 3 and 4 it is seen that the door 1 is jointed at 2 to a sector 3, the arc 4 of which can roll on the horizontal rail 5. The arc 4 has one or more suitable notches 6 engaging with one or more pins or teeth 7 of the rail 5, intended to mark or control the relative positions of the sector and the rail and to prevent any displacement of one of these pieces with regard to the other. The upper part of the door is provided with an arm or extension 8 to which another sector 3′ is jointed at 9, the arc 4′ of which sector can roll on a horizontal rail 5′ likewise provided with distance or stop pins 7′ engaging in notches 6′ of the arc 4′ of the sector. The various rails and sectors are disposed within the door frame at either side of the door opening, as clearly shown in Figs. 2 and 3.

Instead of being carried by two sectors 3, 3′, the door can be carried by a single sector 3 (Figs. 5, 6, 7 and 8) the upper arm 8 of the door being then provided with a small roller 10 which can move on a rail 11 during the movement of the door.

Fig. 9 shows that the system can also be applied to two-leafed doors. In this case, the leaf 1 is carried by a sector 3 of the kind described, and has at the top a horizontal arm 8, provided with a small roller 10 moving on a track 11. The second leaf 1′ is likewise carried by a sector 3′ of the kind described, and has at the top a horizontal arm 8′ projecting in opposite direction to the arm 8 and provided with a small roller 10′ moving on a track 11′. A chain, cord, or the like 12, attached to each of the leaves passes around two guide pulleys 13 so that if the leaf 1 is moved in the direction of the arrow 14, the said chain, cord or the like 12 will draw the leaf 1′ in the direction of the arrow 15.

As is seen in Fig. 10, the leaf of the door can be provided with a horizontal arm 8′ placed under the threshold of the door and connected to or made one with a vertical arm 8″ to which is jointed or pivoted the second oscillating sector 3′. This arrangement is specially advantageous where the

sectors must not be visible through the glass-plates of the upper part of the door-frame, when the invention is applied to tramway-cars or the like.

It is evident that the arrangements above described can be employed separately or conjointly and are capable of different forms of construction, all falling within the scope of the present invention.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. A door, a sector-shaped lever pivoted to said door on one side and having its arcuate portion depending downward, a rail to guide the arcuate portion of said sector-shaped lever, and means connected to the opposite side of the door for supporting and guiding the upper end thereof and adapted to describe a movement similar to that of the side supported by said lever.

2. A door, a sector-shaped lever pivoted on one side at about the middle portion thereof and depending downward, a rail near the bottom of the door and constituting a guide for the arcuate portion of said sector-shaped lever, and means connected to the opposite side of the door for supporting and guiding the upper end thereof and adapted to describe a movement similar to that of the side supported by said lever.

3. A door, a sector-shaped lever pivoted on one side at about the middle portion thereof and depending downward, a rail near the bottom of the door and constituting a guide for the arcuate portion of said sector-shaped lever, said rail and lever having portions 4, 5, adapted to intermesh with one another, and means connected to the opposite side of the door for supporting and guiding the upper end thereof and adapted to describe a movement similar to that of the side supported by said lever.

4. A door, a sector-shaped lever depending therefrom on one side, said lever having an arcuate portion of less length than the desired travel of the door, a horizontal rail constituting a guide for said arcuate portion of said lever whereby the door has a level movement throughout a portion of its throw, and a slight downward movement at the limit of its throw, and means connected to the opposite side of the door for supporting and guiding the upper end thereof and adapted to describe a movement similar to that of the side supported by said lever.

5. A door, a sector-shaped lever pivoted thereto and depending therefrom at one side of the door, means for supporting the arcuate portion of said lever, and means connected to the opposite side of the door for supporting and guiding the upper end thereof and adapted to describe a movement similar to that of the side supported by said lever.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

ALPHONSE THEYSKENS.

Witnesses:

CHARLES HONOLD,

GREGORY PHELAN.