E. P. GOLDEN.

DOOR HANGER.

APPLICATION FILED APR. 12, 1910.

996,481. Patented June 27, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

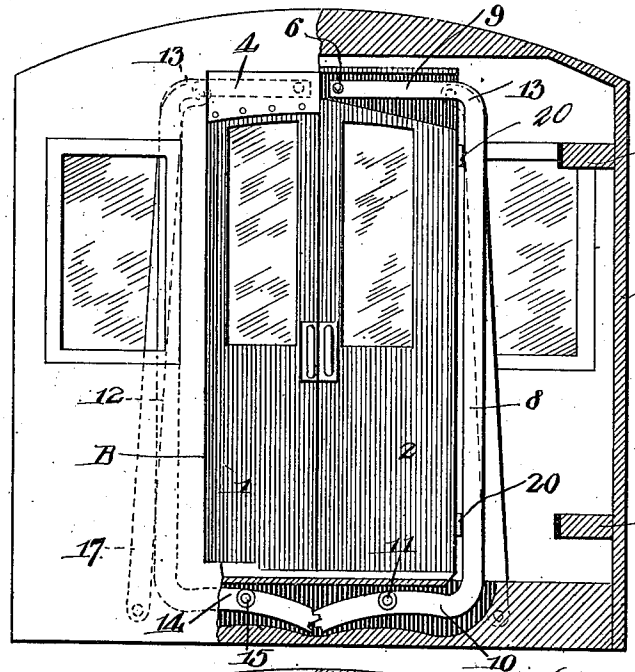
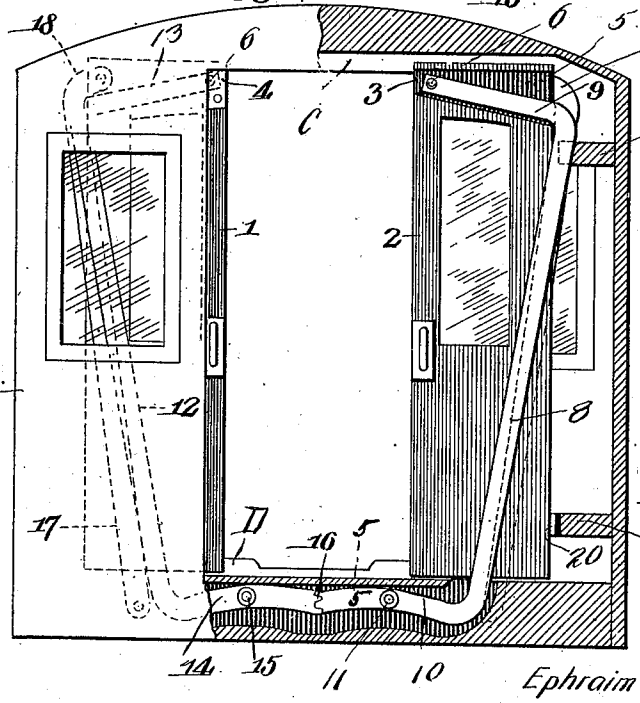


Fig. 2.



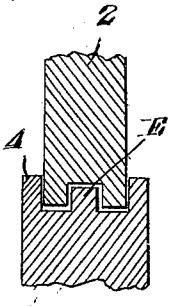


Fig. 5

Witnesses

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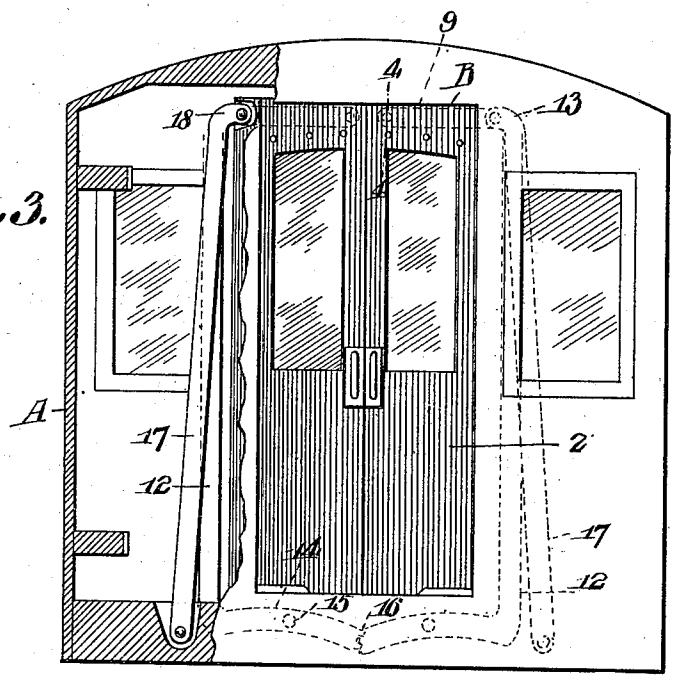
2 SHEETS—SHEET 2.

Fig. 3.



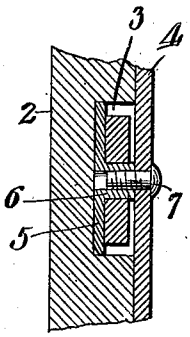


Fig. 4.

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DOOR-HANGER.

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Application filed April 12, 1910. Serial No. 554,994.

To all whom it may concern:

Be it known that I, EPHRAIM P. GOLDEN, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Door-Hangers, of which the following is a specification.

This invention relates to hangers for sliding doors, and has for an object to provide improved mechanism of this character consisting of pivoted links which are operable to guide the door in its movement to cause the same to move on an arc of a circle thereby eliminating frictional engagement of the door frame or casing with the door itself.

A still further object of the invention is to provide supporting links each being pivoted at one end to a fixed point and pivoted at its opposite end to the door and to construct the links so that the door will tend to move by gravity to assume its open position or its closed position after the initial movement of the door manually to cause the pivots to assume positions past a dead center.

In the drawings, forming a portion of this specification and in which like numerals of reference indicate similar parts in the several views:—Figure 1 is a front elevation of a portion of a car showing my improved door applied thereto, the sections forming the door being in their closed positions, parts being shown in section to clearly disclose the invention. Fig. 2 is a similar view showing the sections of the door moved to their full open positions. Fig. 3 is a view similar to Fig. 1 looking in an opposite direction. Fig. 4 is a detail section taken on the line 4—4 of Fig. 3. Fig. 5 is a section through a portion of the door casing and a portion of the door taken on the line 5—5 of Fig. 2.

Upon reference to the drawings, the car A is formed to provide a door opening B and upper and lower guideways C and D for the sections 1 and 2 of the door. The bottom guideway is formed to provide a guide rib E which is constructed to fit correspondingly formed channels in the lower edge portions of the door sections. The said door sections are formed to provide recesses 3 which are closed by plates 4, as shown. Each door section is provided with a plate 5 from which extends an interiorly threaded pivot stud 6, a screw 7 or similar fastening device being passed through the said plate 4 for engagement in the threaded bore of the pivot stud 6 see Fig. 4. A link 8 of angular form is provided for the section 2 of the door and as illustrated, the arm 9 of said link extends into the said recessed portion 3 of said door section and its free terminal is apertured for receiving the pivot stud 6 of such section. The arm 10 of the link is pivoted midway between its ends on a stud 11 at the bottom of the door frame and at one side of the door opening but at a point below the plane of the opening, as shown. The section 1 is provided with a link 12 which is substantially identical in construction with the link 8 of the door section 2. This link is provided with an arm 13 which is pivoted at its extremity to the pivot stud 6 of the door section. The link 12 is provided with an arm 14 which is mounted midway between its ends on a pivot stud 15 which extends from the car, as shown, and which is disposed in a plane with the pivot studs 11 of the arms 10. The said arms 10 are formed to provide intermeshing toothed surfaces 16 which are constructed so that in movement of one door section a corresponding movement will be transmitted to the companion door section.

Links 17 are provided for the opposite sides of the door sections and as shown, the said links are formed at their upper ends to provide relatively short arms 18 which are pivoted to the door sections adjacent to the outer edges thereof but near the upper ends thereof. The lower ends of the said links are pivoted to the car at points outwardly of the pivot studs 11 for the links 8 and 12 respectively.

The casing or frame for the door is provided with suitable buffers 19 which are constructed to engage corresponding buffers 20 on the outer edge portions of the door sections as shown in Fig. 2 of the drawings. This construction is provided not only as cushioning means for the door sections but as means for preventing strain on the pivots for the hereinbefore described links.

Upon reference to Fig. 1 of the drawings, wherein the door sections 1 and 2 are in their closed positions it will be seen that the lower edge portions of the sections rest immediately on the bottom wall of the guideway at the bottom of the door casing. In movements of the door sections away from each other it will be observed that as soon

as each section passes the dead center the weight of the section together with its angle supporting or hanging link will be sufficient to cause the door to move by gravity to assume the full open position shown in Fig. 2 of the drawings. The construction of the door and the hanging mechanism described therefor is extremely simple and in practice, it has been found that the sections are immediately moved out of frictional engagement with any part of the door casing during movements of the sections to their open or closed positions. By thus preventing frictional engagement of the door sections with the casing and incident to the peculiar construction of the herein described supporting or hanging links the said sections can be conveniently and effectively manipulated with but little exertion on part of the operator.

I claim:—

1. In a hanger for sliding doors, comprising oppositely movable door sections, links of angular construction each having an upper short arm and a lower short arm and a connecting relatively long side arm, the said upper short arms of the links each having pivotal connections with the respective door sections, the said links having their lower arms pivoted to fixed supports beneath the door sections, and second links each pivoted to the outer edge of the door sections at the opposite side thereof and at their upper ends and having their lower ends pivoted to a fixed support beneath the plane of the door sections.

2. In a hanger for sliding doors, the combination with a door comprising oppositely movable sections, of links of angular construction pivotally supported beneath the door sections and toothed for intermeshing engagement with each other, the said links having their upper ends pivotally engaged with the door sections, and second links pivotally supported below the door opening and pivoted at their upper ends to the outer edge of the respective door sections.

In testimony whereof I affix my signature in presence of two witnesses.

EPHRAIM P. GOLDEN.

Witnesses:
HENRY A. HABEL,
EVA WESTFALL.