

(No Model.)

2 Sheets—Sheet 1.

A. D. SINEX.
DOOR HANGER.

No. 558,667.

Patented Apr. 21, 1896.

Fig. 1.

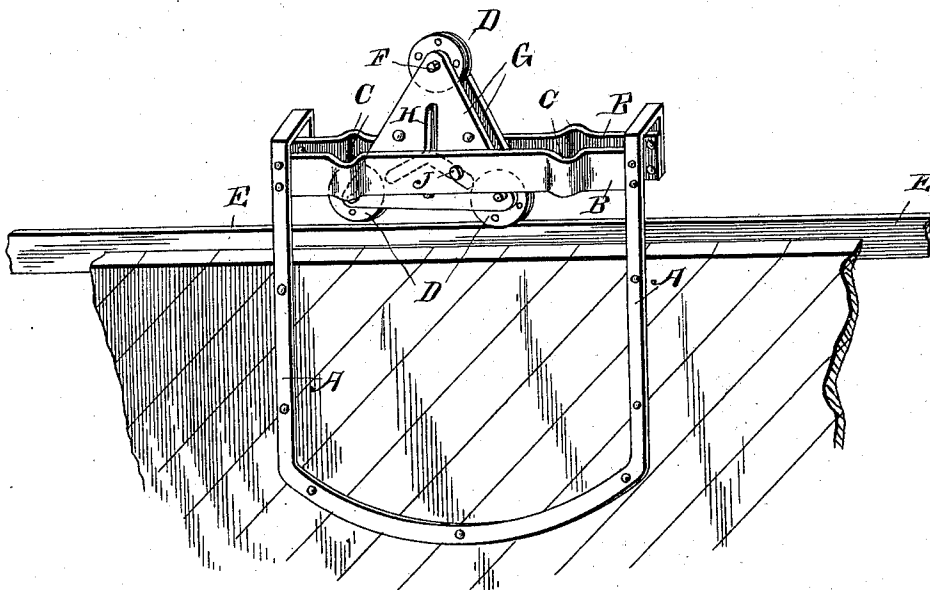


Fig. 2.

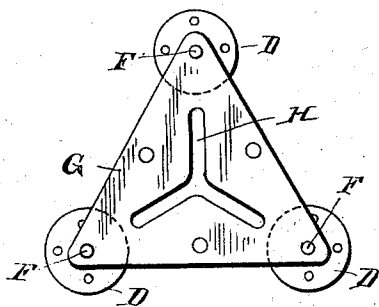
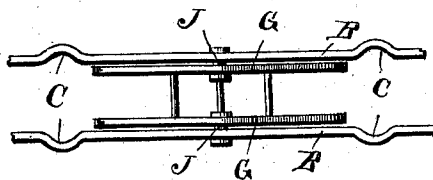


Fig. 3.



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2 Sheets—Sheet 2.

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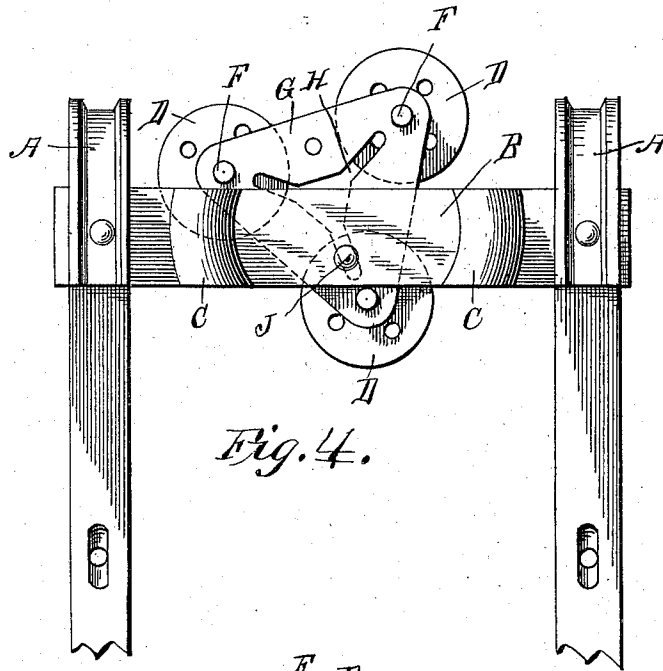


Fig. 4.

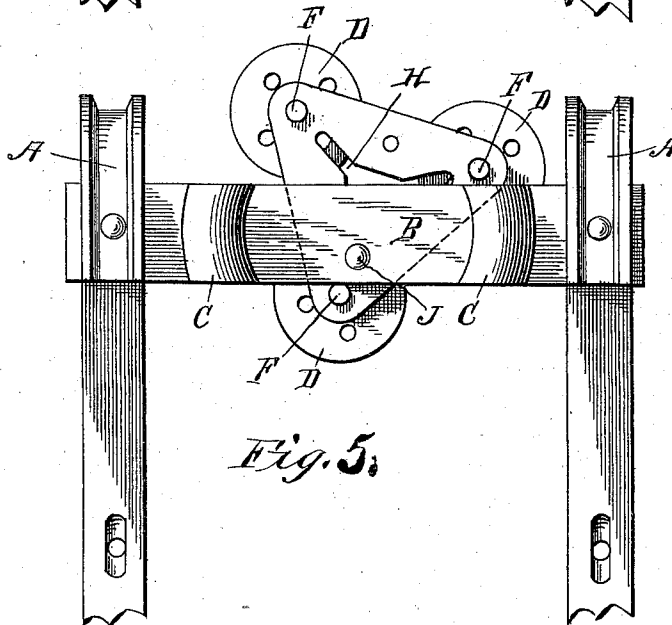


Fig. 5.

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UNITED STATES PATENT OFFICE.

ANDREW D. SINEX, OF ROCK FALLS, ILLINOIS, ASSIGNOR TO JOHN H. LAWRENCE AND EDWIN F. LAWRENCE, OF STERLING, ILLINOIS.

DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 558,667, dated April 21, 1896.

Application filed October 3, 1895. Serial No. 564,576. (No model.)

To all whom it may concern:

Be it known that I, ANDREW D. SINEX, a citizen of the United States, residing at Rock Falls, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Door-Hangers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention has reference to improvements in door-hangers and comprises certain novel and effective mechanism for recurrently transferring the points of support under the rider-bar, to the end that a rider-bar of moderate length may be used irrespective of the extent of the intended movement of the door.

My invention belongs to that class of door-hangers which may be termed "antifriction," inasmuch as all of the parts which move upon each other do so with a rolling movement as distinguished from a sliding one.

In the above type of hangers the door is usually carried by rider-bars, which are supported upon the ends of the axles or spindles of the carrying-wheels, the perimeters of which traverse the track attached to the building. One main objection to that type of hangers, as heretofore constructed and used, has been that the limit of the above operation of the carrying wheel or wheels was necessarily coincident with the length of the rider-bar at the maximum of such movement, and if the wheel or wheels were casually at any intermediate point under said rider-bar then the operation of said wheel or wheels was limited to the interval between it and the rear end of the rider-bar.

In my invention the purpose is to successively bring a succeeding carrying-wheel under the rider-bar, which, after traversing a certain portion of the latter, passes upward out of operation and is succeeded in turn by another wheel, and so on indefinitely, whereby the movement of the door can be continued for any desired period without any of said wheels reaching the end of the rider-bar. The advantage of this construction inheres in the

fact that said hanger may be constructed of any convenient length, and when so constructed is adapted for use upon any door wholly regardless of the extent of the movement required in any instance.

I attain the purposes aforesaid by the construction shown in the accompanying drawings, in which—

Figure 1 is a perspective of a door-hanger embodying my invention. Fig. 2 is a detail of the carrying-wheels with their interconnecting plates. Fig. 3 is a detail in section of the studs on the rider-bars, which traverse the three-limbed slots, respectively, formed in the connecting-plates of the carrying-wheels. Fig. 4 is a side elevation showing position of parts after the wheel D last previously used has passed up through the rider-bars B B. Fig. 5 is the same after the same wheel has passed through the upper portion of its orbit and is about to pass down between said bars into position to succeed the wheel B, there shown under said bars.

Similar letters refer to similar parts throughout the several views.

A is the usual door-supporting iron suitably attached to the outside of a door and having its upper extremities looped downward, so as to furnish seats for the twin rider-bars B B. These bars are attached at each end to the support A in the usual manner and are respectively provided with the vertical outward loops C to permit the passage between said rider-bars of the carrying-wheels D, as hereinafter named.

The carrying-wheels D may be of any of the usual constructions for that purpose and are adapted to traverse and be supported by the usual track E, attached to the building over and projected to one side of the door-opening. The wheels D are provided at each side with the usual extensions F of their axles, which, projecting laterally beyond the sides of the wheels and under the bars B, carry the support A and the door to which the latter is attached.

G G are oppositely-placed triangular plates, in the respective angles of which are journaled the wheels D. The plates G are utilized in pairs, one being placed at each side of the wheels D, the space between the rider-

bars B being such as to permit of the insertion and free movement in a vertical plane of the plates G with their attached wheels D.

In each of the plates G there is formed a three-limbed slot H, the limbs thereof radiating from a common center, which latter is about coincident with the common center between the wheels D. When the plates G with their attached wheels D are placed between the rider-bars B, studs J J are projected from the respective rider-bars inwardly to and within the slots H, respectively, and serve to give direction and impart an eccentric rotation to said plates and wheels in the shifting of the door, as hereinafter described.

The operation of my invention is as follows: In Fig. 1 the hanger is assumed to be moving toward the right, and the right-hand wheel has just passed down through the forward loops C between the bars B, and its projections F having passed under said bars and the lower point in its perimeter resting on the track E it supports the bars B with the attached door. The next preceding wheel D is represented in said figure as leaving the track E and passing upward between the rider-bars B through the rear loops C, said loops affording room for the passage of the projections F. In the movement of the door to the right the bars B pass over the projections F, and the periphery of said projections being less than the perimeter of the wheels D the latter, in said movement, fall behind the bars B and relatively pass toward the rear of the latter. In this movement the studs J pass out of the limb of slot H, which projects toward the front, and into the limb of said slot H, which next projects toward the front, and as the front carrier-wheel passes toward the rear under the rider-bar B said studs J are at the forward extremity of said front slot when said front wheel is directly under said stud. It will be seen from the foregoing that the plates G with their attached wheels rotate on the studs J, while the latter have the further movement of passing in and out of each of the limbs of the slot H as such limbs pass down in front and under said studs J. The loops C permit the ready passage up and down of the wheels D, with their projected axles F, and the interval between said loops is such that the front wheel drops down into place under the rider-bars just previous to the upward passage of the rear wheel D through the rear loops C in the eccentric axial rotation of the plates G and

their attendant wheels D. It is obvious that the longitudinal movement of said plates and wheels is limited by the extent of the slot H, and as the distance from the studs J to the end of the rider-bars B is greater than that from the farthest extremity of any one of the limbs of the slot H to the perimeter of the farthest wheel D, none of the latter can ever reach the end of the rider-bars so as to be forced into the angle made by the latter and the vertical support A.

Upon the movement of the door in the opposite direction the action before described is reversed, the effect produced by a movement of the door in either direction being to bring the wheels D in succession under the central portion of the rider-bars B and pass them up between the latter before they shall reach, respectively, the ends of the rider-bars. This intermittent use of the wheels D, limited to the central portion of said rider-bars, renders it feasible to use the hanger over any-sized opening, as the movement of the door to an indefinite extent would never lock the wheels D in the angle aforesaid or bring them into contact with the support A.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination with the rider-bars B, provided respectively with studs J, of plates G provided with wheels D and slots H, and adapted to be pivotally seated on the studs J between said rider-bars, and to successively pass said wheels under said bars, substantially as shown and for the purpose specified.

2. In a door-hanger, the combination of two horizontal parallel rider-bars, as B. B. and plates, as G., eccentrically pivoted between said bars, and provided at their margin with a series of bearing-wheels, as D. D. substantially as shown and for the purpose described.

3. In a door-hanger, the combination of the rider-bars B provided with studs J, and plates G provided with bearing-wheels, and eccentrically pivoted between said bars on said studs, substantially as shown and for the purpose specified.

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

ANDREW D. SINEX.

Witnesses:

W. P. BENSON,

E. F. LAWRENCE.