

(No Model.)

J. SCHLUTTER.  
DOOR HANGER.

No. 423,280.

Patented Mar. 11, 1890.

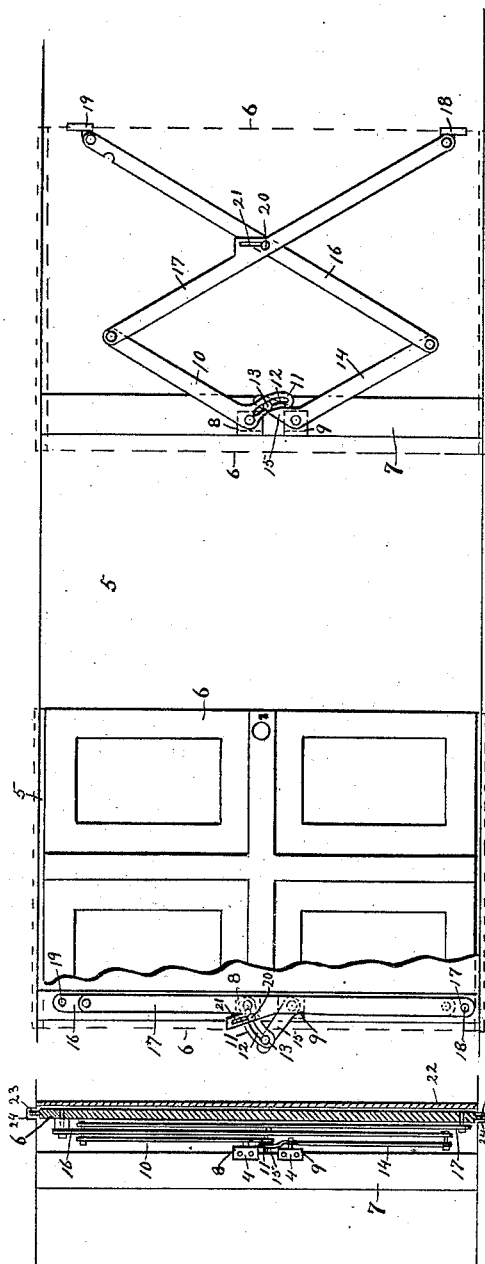


Fig. 1.

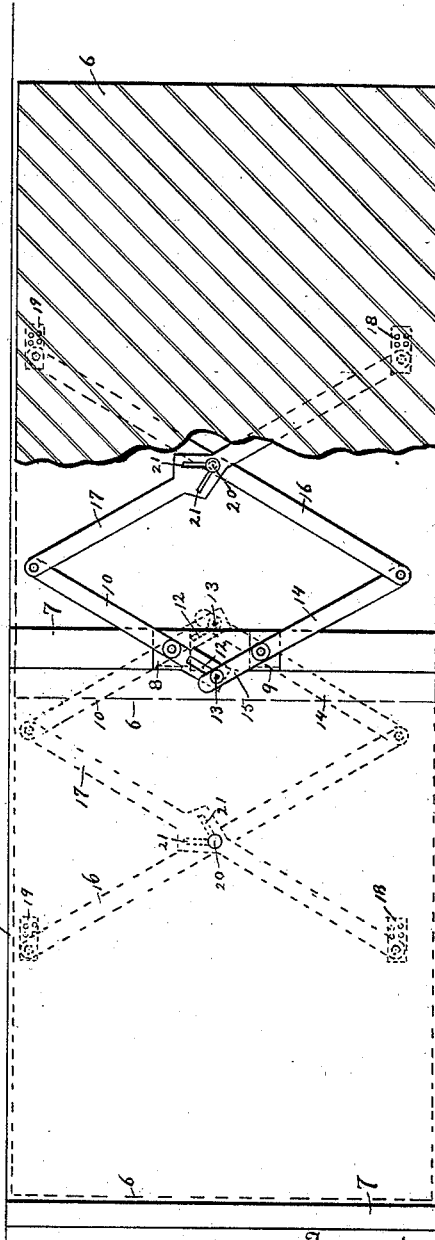


Fig. 2.

Fig. 3.

Witnesses  
C. L. Gurney  
E. R. Rowley

John Schlutter  
By his Attorney  
Wm. L. Bailie

Inventor

# UNITED STATES PATENT OFFICE.

JOHN SCHLUTTER, OF BALTIMORE, MARYLAND.

## DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 423,280, dated March 11, 1890.

Application filed January 6, 1890. Serial No. 336,080. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN SCHLUTTER, a citizen of the United States, residing at Baltimore, in the State of Maryland, 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in hangers for supporting the folding doors in dwellings and other buildings; and it consists of such construction and operation of the various parts thereof whereby the door will be properly supported in any position in which it may be placed, the various parts thereof being fulcrumed on pivots, thus reducing the friction to a minimum and permitting the door to be easily opened or closed, the particular construction of the device being such that it may readily be applied to any folding door without disturbing the casing thereof, the walls, or any part connected therewith, all of which I accomplish by the devices hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 shows a front view of an opening that is provided with two doors, one of the said doors shown partly broken away and in the closed position, the other door being represented by dotted lines in the open position. Fig. 2 shows a view looking edgewise on the closed door, the door and the casing thereof shown in section. Fig. 3 shows a modification of the device where a single large door is provided to close the opening, the door shown partly broken away in the open position, and dotted lines representing the door in the closed position.

The same numbers refer to the same or similar parts throughout the several views.

The number 5 denotes an opening that is provided with the sliding doors 6, there being placed on each side of the said opening an upright post 7, to which are fastened the fulcrum-plates 8 and 9, Figs. 1 and 2, that support the hanger and the door. As both doors and the attached parts are fac-similes one of the other, a description of the one will

be sufficient for a clear comprehension of the construction and operation of the whole.

The plates 8 and 9, that support and permit the movement of the hangers, are preferably made of an angular form, whereby the front face 4 thereof can be readily fastened to the exposed surface of the upright 7. Pivoted to the upper plate 8 is the lower end of the upper lever 10, there being extended from the lower end of this lever 10, in the direction shown in Fig. 1, the arc 11, that has therein the slot 12, in which is free to move the pin 13, that is provided in the end of the short arm 15 of the lower lever 14, that is pivoted to the lower plate 9 on the post 7, the short arm 15 thereof being of the bent form shown, whereby when the door is in the closed position, as shown at the left of Fig. 1, the pin 13 thereof will be at the lower extremity of the slot 12 and further movement in this direction prevented, the curvature of the slot 12 being such as to permit the movement therein of the pin 13 in conformity with the relative movement of the two levers 10 and 14, the inward movement of the door being limited by the upper extremity of the slot 12, as shown at the right of Fig. 1. Pivoted to the upper end of the lever 10 is one end of the bar 17, that is of a flat form and sufficient length to extend to near the bottom of the door and be pivoted to the plate 18, that is fastened to the door at the edge and near the bottom thereof, a bar 16 of like form being pivoted to the lower end of the lever 14 and of sufficient length to extend near the upper part of the door and be pivoted to the plate 19, that is placed at the edge of the door and near the top thereof, a fulcrum for these two bars 16 and 17 being provided near their middle point of meeting by the pin 20, that is free to move in a slot 21, formed in the bar 17, thus permitting the necessary movements of said bars in the opening and closing of the door. By this manner of constructing the hanger and pivoting the various bars and levers to the doors 6 and posts 7 it will be seen that a compensating strain is placed on all the parts of the hanger by the weight of the door, which will be supported in proper position thereby in all positions, the arrangement of the bars 16 and 17, that are pivoted to the door, and their connection with the levers 10 and 14, pivoted to the post 7, allowing only such movement between the arc 11 of the bar

10 and the short arm 15 of the lever 14 as will be imparted thereto by a parallel movement of the said bars 16 and 17 in sliding in or out the door 6, thus preventing any other movement of the door by the weight thereof and suspending it under all conditions in proper position, whether open, as shown at the right of Fig. 1, or closed, as shown at the left of same figure, where all the parts are brought in the same straight line by the movement of the door to this position, the same compensating strain being provided in the hanger at any point therebetween, the pivots upon which the various parts move offering but little resistance, and thus permitting the door to be easily moved either in or out.

In the usual construction of these folding doors a casing 22, Fig. 2, is generally provided, by which a pocket is formed into which the door slides, and thus hides from view the mechanism connected therewith, a tongue 23 being formed on the upper and lower edges of the door, that moves in a suitable groove 24 to guide the door in its movement. It will be seen that by the particular construction of this device the entire door and hanger may be easily removed and replaced without removing or disturbing the casing 22 thereof, as the parts of the hanger can be secured to the detached door and then placed in position in the pocket, after which the plates 8 and 9 may be easily secured in proper position on the exposed surface of the upright post 7, and the entire device will be ready for service.

In Fig. 3 a modification of the device is shown wherein the hanger is employed for one large single door 6 to close the opening 5, such as is generally employed in barns and in other like buildings. In this modification, in order to permit the hanger to be vibrated from one side of the post 7 to the other side thereof, the arc 11 is omitted and the slot 12 is formed in the lower end of the upper lever 10, the fulcrum-plate 8 of which is so placed that the said slot will be in the lower and short arm of the lever 10, the lower lever 14 in this case being made straight, whereby the pin 13 in the end of the short arm 15 thereof will move in the said slot, and thus permit an equal vibratory movement of each of said levers 10 and 14 on each side of said post 7. In Fig. 3 the door is shown partly broken away and in the open position, the plates 18 and 19, to which are secured, respectively, the ends of the bars 17 and 16, being placed in a central line of the door, whereby when the door is half-closed the said bars 16 and 17 and the levers 10 and 14 will all be in the same straight line with the post 7, the further closing movement of the door causing the said bars and levers to pass to the other side of the post and assume the position shown by the dotted lines when the door is closed. It will be seen in this arrangement that the same compensation for the weight of the door is provided by the

hanger and only such harmonious movement permitted between the slot 12 and the pin 13 as was stated in the description of Fig. 1.

Having described my invention and the manner of operating, what I claim, and desire to secure by United States Letters Patent, is—

1. The combination of a door 6, an upright post 7, the lever 10, fulcrumed to said post and provided with a slot 12 in one end thereof, the lever 14, fulcrumed to said post and provided with a pin 13 in one end thereof, the said pin 13 free to move in said slot 12, the bar 16, one end of which is pivoted to the lever 14 and the other end thereof pivoted to the said door, and the bar 17, one end of which is pivoted to the lever 10 and the other end thereof to the said door, the said bar 17 being fulcrumed to the said bar 16, for the purpose set forth.

2. The combination of a door 6, an upright post 7, the lever 10, fulcrumed to said post, an arc 11, extended from one end of said lever 10 and having therein the slot 12, the lever 14, fulcrumed to said post, the short arm 15 thereof engaging with the said slot 12, the bar 16, one end of which is pivoted to the lever 14 and the other end thereof pivoted to said door, and the bar 17, one end of which is pivoted to the lever 10 and the other end thereof to the said door, the said bar 17 being fulcrumed to the said bar 16, for the purpose set forth.

3. The combination of the door 6, the upright post 7, the angle-plate 8, secured to said post, the angle-plate 9, secured to said post, the lever 10, fulcrumed to said plate 8 and provided with a slot 12 in one end thereof, the lever 14, fulcrumed to said plate 9, one end thereof engaging with the said slot 12, the bar 16, one end of which is pivoted to the lever 14 and the other end thereof pivoted to said door, and the bar 17, one end of which is pivoted to the lever 10 and the other end thereof to the said door, the said bars 16 and 17 being fulcrumed one to the other, for the purpose set forth.

4. The combination of the door 6, the upright post 7, the lever 10, fulcrumed to said post and provided with a slot 12 in one end thereof, the lever 14, fulcrumed to said post, one end whereof engages with the said slot 12, the bar 16, one end of which is pivoted to the lever 14 and the other end thereof pivoted to the said door 6, the bar 17, one end of which is pivoted to the lever 10 and the other end thereof to the said door, a fulcrum-pin 20, provided on said bar 16, and a slot 21, provided on said bar 17, in which engages the said fulcrum-pin 20, for the purpose set forth.

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

JOHN SCHLUTTER.

Witnesses:

WM. L. BAILIE,  
JNO. T. MADDOX.