

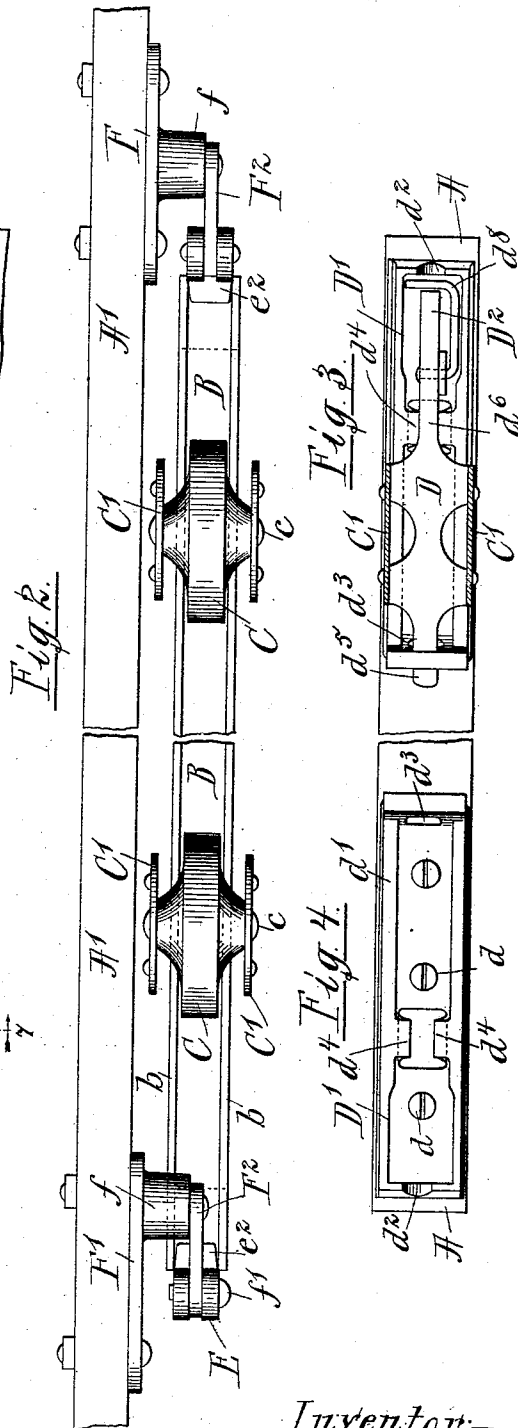
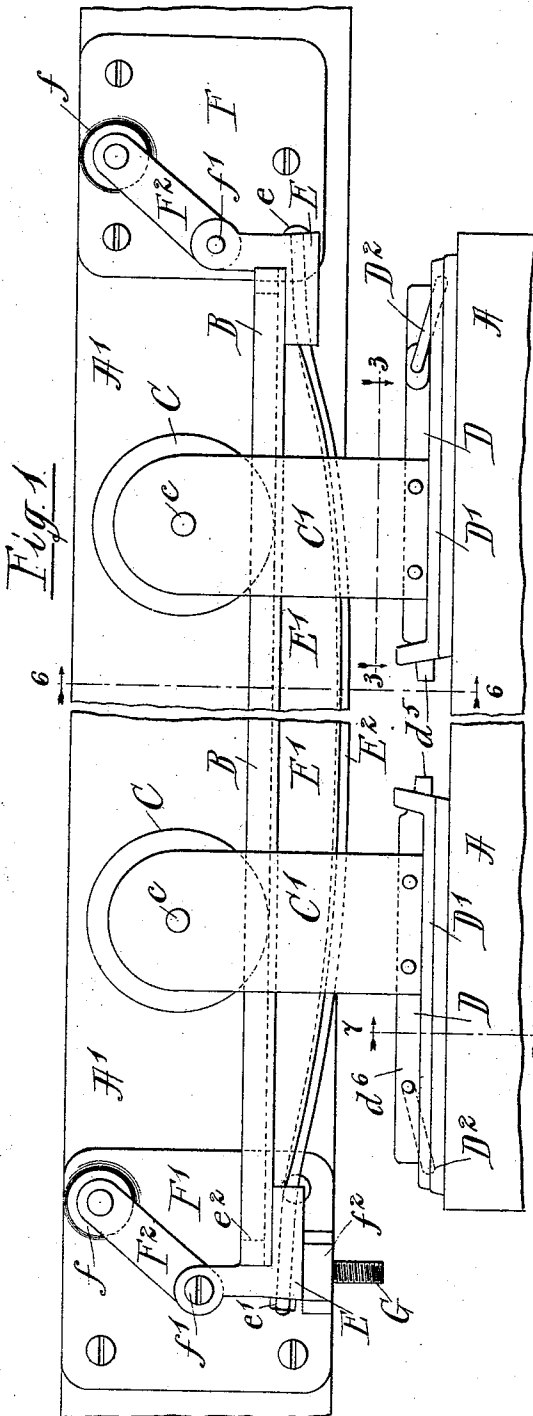
(No Model.)

3 Sheets—Sheet 1.

E. A. HOEFER.  
DOOR HANGER.

No. 540,444.

Patented June 4, 1895.



Witnesses:-  
Jno. W. Adams.  
Clinton Hamlin

Inventor:-  
Emil F. Hoefel  
by:- Dayton, Polk & Brown  
his Attorneys

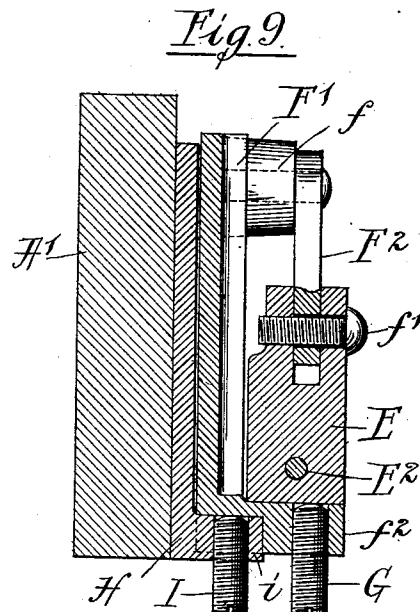
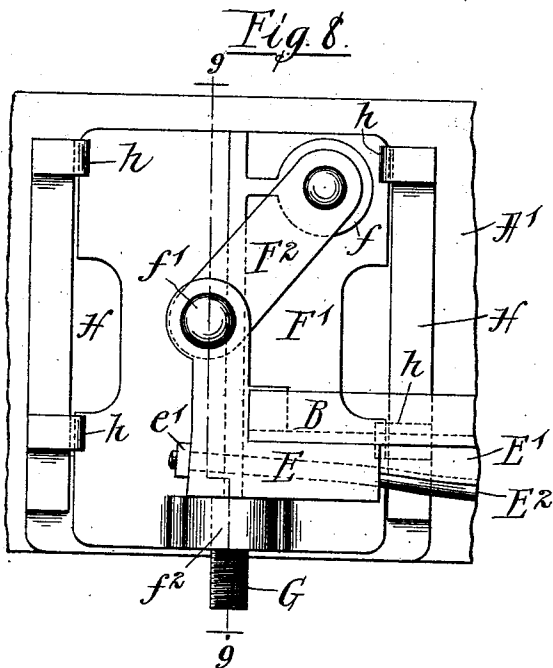
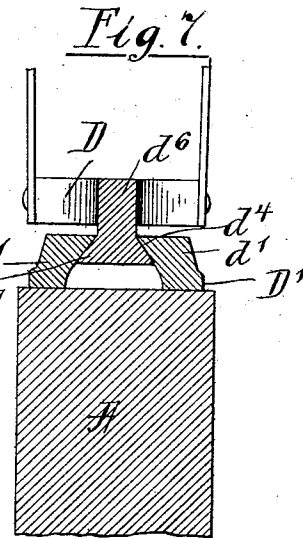
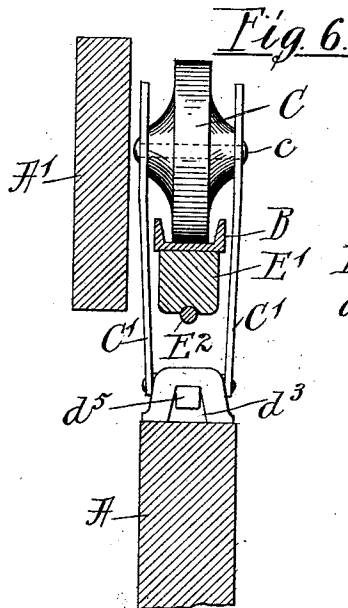
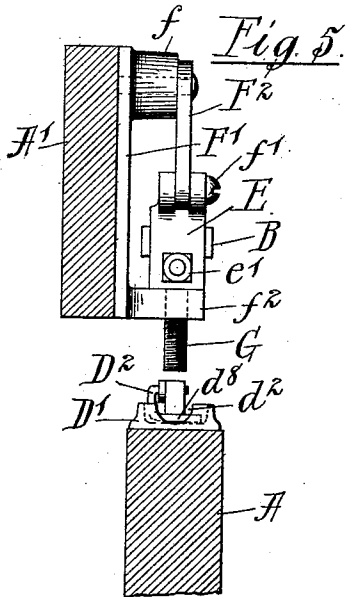
(No Model.)

E. A. HOEFER.  
DOOR HANGER.

3 Sheets—Sheet 2.

No. 540,444.

Patented June 4, 1895.



Witnesses:  
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(No Model.)

E. A. HOEFER.  
DOOR HANGER.

3 Sheets—Sheet 3.

No. 540,444.

Patented June 4, 1895.

Fig. 10.

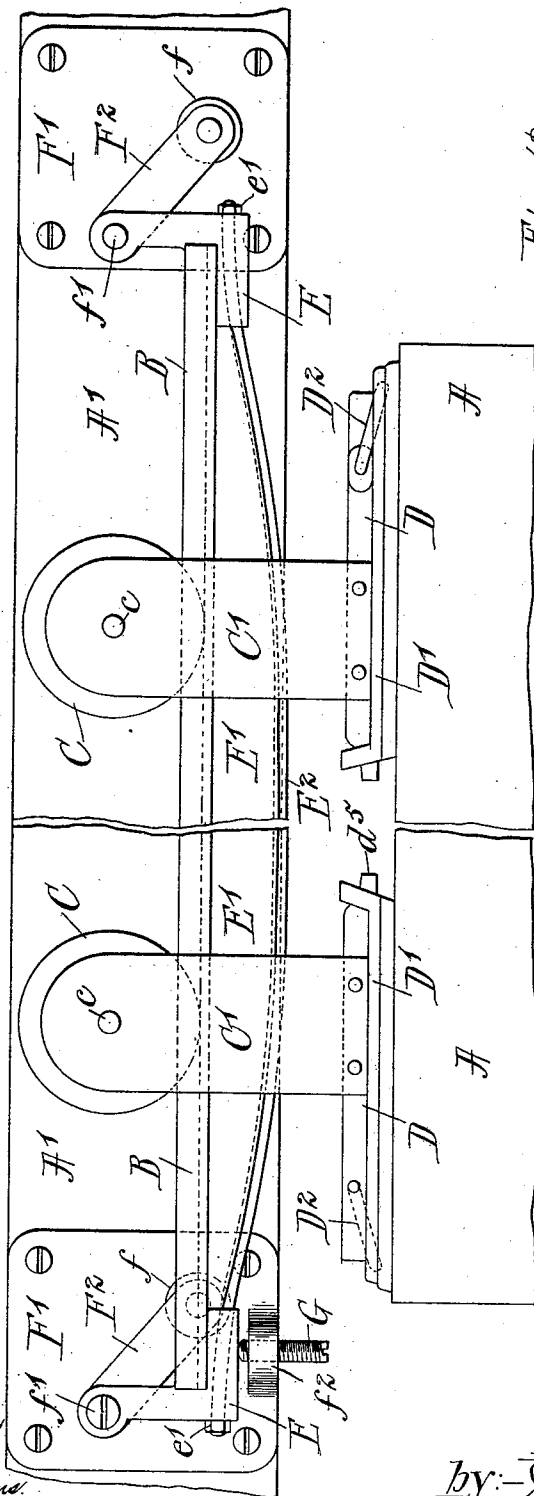


Fig. 13.

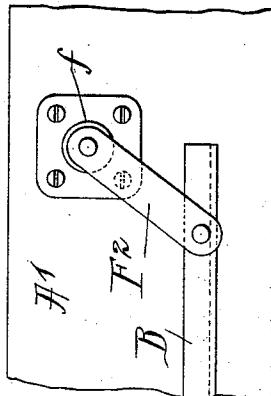


Fig. 11.

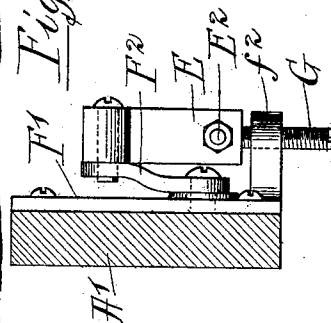
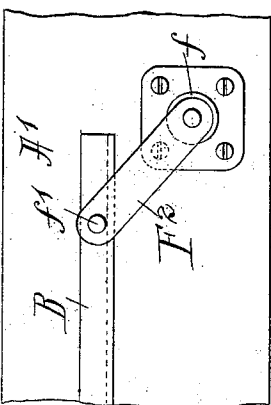


Fig. 12.



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# UNITED STATES PATENT OFFICE.

EMIL A. HOEFER, OF FREEPORT, ILLINOIS, ASSIGNOR TO THE WARNER  
HARDWARE COMPANY, OF SAME PLACE.

## DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 540,444, dated June 4, 1895.

Application filed June 14, 1894. Serial No. 514,507. (No model.)

*To all whom it may concern:*

Be it known that I, EMIL A. HOEFER, a resident of Freeport, in the county of Stephenson and State of Illinois, have invented certain  
5 new and useful Improvements in Door-Hangers; and I do hereby declare that the following is a full, clear and exact description thereof, reference being had to the accompanying  
10 drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in door hangers of that class where one part of the door hanger, that carrying roller wheels,  
15 is mounted upon the upper edge of the door, and the other part of the carrier, that carrying the track over which the supporting wheels roll, is carried upon a partition or other portion of the structure.

20 The present invention embraces two principal features. The first improvement relates to the track and means for sustaining it in position and the means for giving it adjustment. The second improvement relates to the  
25 details in construction whereby the supporting wheel frame is removably secured to the base plate, which latter is screwed or otherwise secured to the top margin of the door.

The advantages and the objects of the invention will be readily comprehended as I proceed with the description thereof, and will be fully understood by reference to the description and drawings and the appended  
30 claims.

35 In Figure 1 I have illustrated in side view a portion of the supporting structure of the upper part of the door with my improved hanger attached, the view being broken away centrally in order to be accommodated within the  
40 limits of the drawing sheet. Fig. 2 is a plan view of the same. Fig. 3 is a horizontal sectional view taken on line 3 3 of Fig. 1 and looking downwardly upon the door or in the  
45 direction indicated by the arrows. Fig. 4 is a plan view of one end of the door, looking down upon the top margin thereof, showing one of the base-plates thereto attached. Fig. 5 is an end view of the track-supporting structure and the base-plate upon the door, partially in section. Fig. 6 is a vertical trans-

verse sectional view taken upon line 6 6 of Fig. 1 and looking in the direction indicated by the arrows. Fig. 7 is a transverse vertical sectional view, enlarged, taken upon line 7 7 of Fig. 1, looking in the direction indicated  
50 by the arrows. Fig. 8 represents in side view a modification of the device for adjusting the track. Fig. 9 is a transverse vertical sectional view of the same, taken on line 9 9 of Fig. 8 and looking in the direction indicated by the  
60 arrows. Fig. 10 is a view similar to that of Fig. 1, showing a modification of the rail-supports. Fig. 11 is an end view looking at the left-hand end of Fig. 10. Figs. 12 and 13 show

in side elevation end portions of two other  
65 modifications of the track-rail and supports.

In the drawings, A represents a door and A' a part of the permanent structure of the house from which the door is to be supported. For the sake of brevity I designate this part  
70 A' as a beam.

B is a track, in this instance and as preferably made, consisting of channel iron, and C supporting wheels which traverse the track  
B. Each wheel is mounted upon a transverse  
75 axle c the ends of which are supported in side plates or standards C'. The lower ends of the plates or standards C' are riveted or otherwise secured to a block D, which is suitably interlocked with a plate D'. The plate D and  
80 the plate D' constitute a two part base plate for the door hanger.

In Fig. 4 is shown more clearly the construction of the lower plate or part D', the same consisting of an oblong rectangular shaped  
85 casting secured by screws d or otherwise to the top margin of the door A. Around the upper side and end margins of the plate D' a flange d' is extended. At one end of the plate a part of the transverse portion of this flange  
90 is cut away, as shown at d<sup>2</sup>, for a purpose presently to be described, while at the opposite end an aperture d<sup>3</sup> extends horizontally entirely through the flange. Intermediate of the ends of the plate and projecting toward  
95 each other are two extensions d<sup>4</sup> so shaped upon their inner sides (see Fig. 7) as to make the space between them dove-tailed or wedge shaped. The plate or block D carries at its forward end an arm or elongation d<sup>5</sup>, the lat-  
100

ter being adapted to enter the aperture  $d^3$  in the flange of the plate  $D'$ . When the plate  $D$  and the plate  $D'$  are thus united it is manifest that the forward end of the former can have no vertical movement with respect to the latter.

To prevent a vertical movement of the rear end of the plate  $D$  with respect to the plate  $D'$ , the plate  $D$  is provided with a rearward extension  $d^6$  of somewhat greater length than the extension  $d^5$ , said extension  $d^6$  being of proper dove-tailed conformation in cross section throughout a portion of its length to fit between and engage the inner surfaces of the extensions  $d^4$  of the plate  $D'$ .

The parts are brought together by the prior lengthwise movement of the part  $D$  upon the plate  $D'$  toward the rear, this being permitted by reason of the cut away portion  $d^2$  of the flange, after which the extension  $d^5$  is entered within the aperture  $d^3$  and the dove-tailed portion brought into its seat between the lips  $d^4$ .

The parts are prevented from retraction by a pawl  $D^2$  pivotally secured to the rear extension  $d^6$  and which is provided with a right angled extension or arm  $d^3$  that engages the inner surface of that portion of the flange  $d'$  out of which the space  $d^2$  is made. This pawl  $D^2$  being a gravity pawl it rides over the end flange  $d'$  when the part  $D$  is being positioned upon the part  $D'$  and falls by gravity as soon as the flange has been passed and the parts assume the positions shown in Figs. 1 and 3. The parts are thus automatically locked in position, but they may be separated readily by first raising the pawl  $D^2$  away from the cross flange  $d'$  and then disengaging the plate  $D$  with its dove-tailed flange  $d'$  and its extension  $d^5$  in an obvious manner.

For lightness I prefer to make the standards  $C'$  of thin metal as shown, and to make the plates  $D$  and  $D'$  of cast metal, cutting away said parts as much as possible, as shown in the drawings, to save metal and to reduce the cost of the hanger. The pawl  $D^2$  is preferably made of a piece of wire bent as shown, one end projecting through a suitable aperture in the extension  $d^6$  with its inserted end headed to prevent withdrawal.

The track rests at either end upon a bracket or block  $E$  and its intermediate portion is supported upon a rib  $E'$ , preferably of wood.

$E^2$  is a tie rod that extends through an aperture in one bracket  $E$ , beneath the rib  $E'$  and through a similar aperture in the other block  $E$ , one end of the tie rod  $E^2$  being provided with a suitable rivet or other head  $e$ , and the other end with a clamping nut  $e'$ . By this construction the two brackets  $E$ , the track  $B$ , and the rib  $E'$  are securely braced together as one structure. A tongue  $e^2$ , projecting from each bracket over the extreme end of the bottom section of the track  $B$  and between the two side flanges  $b$  thereof, prevents any upward motion of the track  $B$  with respect to the brackets  $E$ .

Suitably secured to the beam  $A'$  are two

plates  $F$   $F'$ , each carrying a raised hub or boss  $f$ .  $F^2$   $F^2$  are carrying links the upper end of each being pivotally secured to the hub or boss  $f$  while the lower end of each link  $F^2$  is pivotally secured at  $f'$  to the bifurcated upper end of the bracket  $E$ . To the plate  $F'$  is integrally arranged a support or projecting arm  $f^2$  upon which the forward bracket  $E$  rests. This bracket is positioned slightly in advance of the hub or boss  $f$  on the plate  $F'$  so that the links  $F^2$  extend in an inclined position, shown in Fig. 1, when the parts are assembled. A vertical screw threaded aperture is made through the support  $f^2$  to receive an adjusting screw  $G$  the upper end of which impinges against the lower face of the forward bracket  $E$ . It will be manifest that the turning of the bolt  $G$  so as to raise it through and above the bracket  $f^2$  will also raise the bracket  $E$ , and as both brackets and the track are pivotally hung from the bosses  $f$  it follows that the entire track will be raised vertically in a horizontal plane whenever the adjusting bolt  $G$  is turned up beneath it, and it will be correspondingly lowered when the adjusting bolt  $G$  is unscrewed or lowered. This I regard as a very important feature of my invention, as it is a simple, convenient and effective construction. By placing the adjusting bolt  $G$  near the front end of the door it is a very easy matter to insert an ordinary screw driver to the head of the bolt  $G$  and effect the adjustment, said bolt  $G$  being for this purpose provided with the usual slot in its lower end.

I sometimes find that it is necessary to provide for raising or lowering one end of the track without raising or lowering the other end, and this I accomplish by means of a device illustrated in Figs. 8 and 9. In these figures  $F'$  represents a plate for use in lieu of the plate  $F'$  of the construction hereinbefore described, and having a boss or hub  $f$  to which one end of the link  $F^2$  is secured, the other end of the link being secured to the bracket  $E$ , as before explained. This plate  $F'$  carries a shoulder or stop  $f^2$  and the adjusting bolt  $G$ . Instead of mounting the plate  $F'$  directly upon the beam  $A'$  it is mounted upon a plate  $H$ , which latter is secured in a suitable manner to the said beam  $A'$ . Guide flanges  $h$  serve to secure the plate  $F'$  in position upon the plate  $H$  while permitting the vertical movement of the former with respect to the latter. This vertical movement is effected by means of an adjusting screw  $I$ , similar to the bolt  $G$ , which is passed through a screw threaded aperture in a flange or arm  $i$  upon the lower end of the plate  $H$ , the upper end of the adjusting bolt  $I$  engaging the lower edge of the plate  $F'$  which latter is cut away or recessed to extend over the bracket or shoulder  $i$ , as more clearly shown in Fig. 9. By turning the adjusting bolt  $I$  the plate  $F'$  is bodily moved vertically up or down as the case may be, the end of the track structure carried by the plate  $F'$ , of course, moving

with it. Since the plate F is not actuated by this movement it follows that the end of the track B is raised as desired without appreciably affecting the adjustment of the rear end. I may combine both adjustments in one hanger if desired, or may use the one adjustment shown in Fig. 1.

The precise details of construction whereby the two independent adjustments are effected and whereby the carrying wheels are removably secured to the door, I do not regard as the essence of my invention, and therefore these may be modified according to the circumstances by any skilled mechanic without departing from the spirit of my invention. As illustrating such obvious modifications, in Figs. 10 and 11 I have shown a construction which is practically a reversal of the arrangement of the supporting links F<sup>2</sup>; said links and the manner of attaching them to the depending brackets being slightly modified, as clearly shown in Fig. 11.

Figs. 12 and 13 show two other modifications in which the rail is supported directly from the links F<sup>2</sup>, thus dispensing with the brackets E. The arrangement shown in Fig. 12 has the advantage of permitting the hanger wheels to travel the entire length of the track rail without interference, while at the same time the latter is supported at points intermediate of its ends, thus shortening the span between supports.

What I claim, and desire to secure by Letters Patent, is as follows:

1. In a parlor door hanger, the combination of a track, a pair of links, one end of each link being pivotally secured to the track and the other end of each link being pivotally secured to the permanent structure, and an adjusting mechanism on the latter engaging one end of the track, said links being par-

allel with each other, substantially as described.

2. In a door hanger, the combination of a track pivotally mounted upon a stationary part of the structure, means for adjusting one end of the track independently of the other, and means for giving a bodily movement or adjustment to the whole track, both of said adjustments being in a vertical plane substantially as described.

3. In a door hanger, a track pivotally linked at one end to a part of the permanent structure, a plate carrying a link by which the other end of the track is secured thereto, and means for adjusting one end of the track with respect to said plate, substantially as described.

4. In a door hanger, the combination of a track pivotally linked at one end to a part of the permanent structure, a plate movably secured to said permanent structure at the other end of said track, a link pivotally uniting said track and said plate, means for adjusting one end of the track with respect to the plate, and means for adjusting the plate with respect to the permanent structure, substantially as described.

5. In a door hanger, the combination of a track rail, a supporting bracket at each end of the rail, a strengthening rib beneath the rail and between the brackets, a tie rod or bolt engaged with said brackets to unite said rib and said rail, and link pivotally connecting each bracket to the supporting structure, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

EMIL A. HOEFER.

Witnesses:

D. S. BREWSTER,  
H. B. ZARTMAN.