W. E. WARNER.

DOOR-HANGERS.

No. 186,388. Patented Jan. 16, 1877.

Fig. 1.

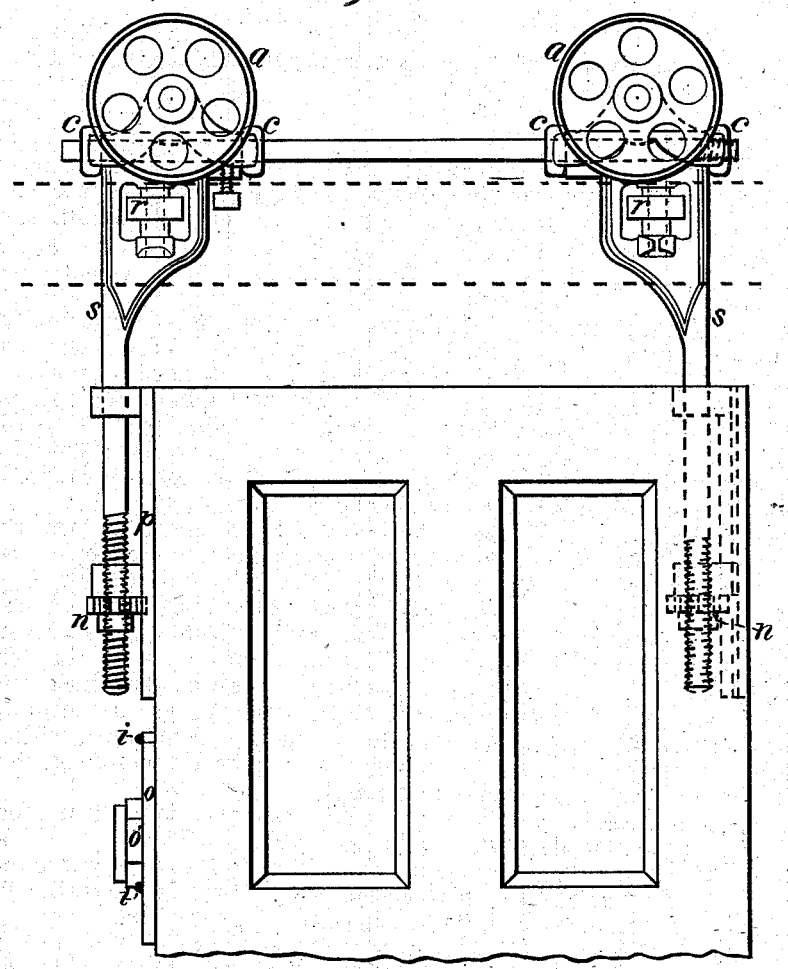


Fig. 2.

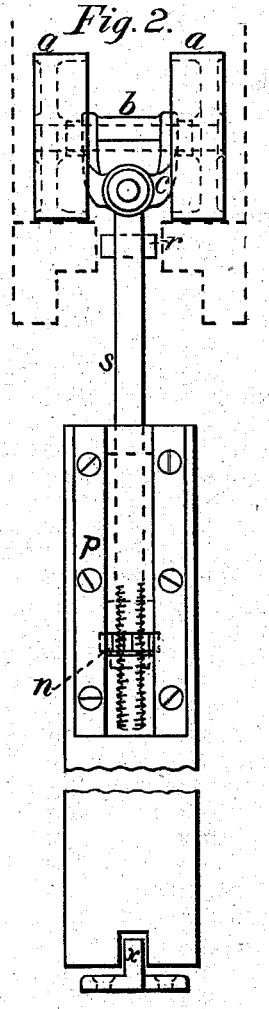


Fig. 3.

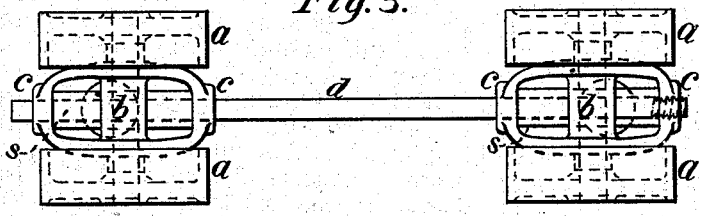
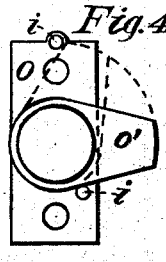


Fig. 4.



Witnesses;

J. W. Maxwell

Laurence T. Jones

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UNITED STATES PATENT OFFICE.

WARREN E. WARNER, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN DOOR-HANGERS.

Specification forming part of Letters Patent No. **186,388**, dated January 16, 1877; application filed October 9, 1876.

To all whom it may concern:

Be it known that I, W. EUGENE WARNER, of Syracuse, Onondaga county, New York, have invented an Adjustable Device for Hanging Doors, of which the following is a specification:

My invention consists of a system of suspension roller-carriages connected by rods, so as to render the device adjustable, to fit different widths of doors. The carriages are provided with suspending-rods extending down through hanger-plates, that are secured to the front and rear edges of the door, the rods being supplied with an adjusting device by which the elevation of the door can be regulated at the desired distance from the floor. The rollers move upon an ordinary double track. They are so hung as to adjust themselves to any unevenness of the rails from a level horizontal line. To prevent the door from being pulled out too far, I provide a stop that holds the door at the end of its proper course. A guide-rail, *x*, (see Fig. 2,) is affixed to the floor within the recess, that fits into a groove made in the lower edge of the door, to keep it steady at the bottom.

The construction of the parts above named is as follows, referring to the accompanying drawings, Figure 1 of which is a side elevation of the door, with the roller-carriages and suspension-rods shown attached, the stationary rails in dotted lines. Fig. 2 is an end elevation of the same, and end of the guide-rail in the groove at the bottom of the door. Fig. 3 is a plan of the suspension-carriages; Fig. 4, front of the drop-stop detached.

The rollers *a a* have a flat head, and hubs projecting inward are affixed to a cross-axle that turns in a tubular box, *b*, that may be lined with anti-friction metal, to facilitate the making and running. This box forms part of a frame, *c*, through holes in which, at right angles to *b*, a rod, *d*, passes, which extends from one carriage to the other, to connect them and give them stability. It is firmly attached to the front carriage, and a set-screw or other fastening attaches it to the rear carriage, which, by this means, can be set at any distance apart, to adjust it to any width of door. The rod *d* serves as the pivot-pin of the joint which connects the head of the suspension-rod *s*, by which the door is hung to the carriage *c*, by which the latter can adapt itself to the rails (shown by dotted lines in Figs. 1, 2) without bending or swaying the door from its upright position.

A friction-roller, *r*, is placed horizontally in the head of the suspension-rod *s*, and bears on the inner sides of the stationary rails, between which it runs, and guides the rollers *a a* on the track. The rails I prefer of hard wood, but they may be of any other suitable material that will afford a permanent support, which should be noiseless.

The suspending-rods *s* extend down through the hanger-plates *p*, which are secured to the edges of the door in front and rear, as seen in the drawing, near the upper corners. On the lower ends of rods *s s* I put a nut or other device for adjustment, forming a bearing for the hanger-plates to rest on, by which the door can be raised or depressed, as desired, to conform to the floor or carpet over which it passes, and also to make a joint where the front edges meet.

To prevent the doors from running out too far, I provide a drop-stop, *o*, Figs. 1, 4. This stop is pivoted to a plate fastened on the inner edge of the door. Its range of motion is limited by the pins *i i* on the plate.

When the door is to be removed from the recess, the stop can be raised with a knife-blade inserted between the door and jamb. The bottom of the door is grooved to move on the guide-rail *x*, as before described, to prevent the door from swaying out of line at the bottom.

With my adjustable hanger, and suspending doors at their edges, they move easier, and permit a better finish at the bottom. Their height can be readily adjusted to clear the floor or carpet, and match their front edges when closed under all defects of sagging or uneven rails, thus combining many advantages over other hangers.

Having thus fully described my improvements, I claim—

1. A hanger, having a suspension device for suspending the door by the edges, attached substantially in the manner and for the purposes specified.

2. The adjustable hanger, consisting of the compound roller-carriages, connected by a rod, *d*, substantially as herein described, and for the purposes described.

3. The suspending-rods *s*, attached to roller-frame, provided with the friction-roller *r*, and an adjustable device, substantially as herein set forth, and for the purposes specified.

WARREN EUGENE WARNER.

Witnesses:
J. J. GREENOUGH,
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