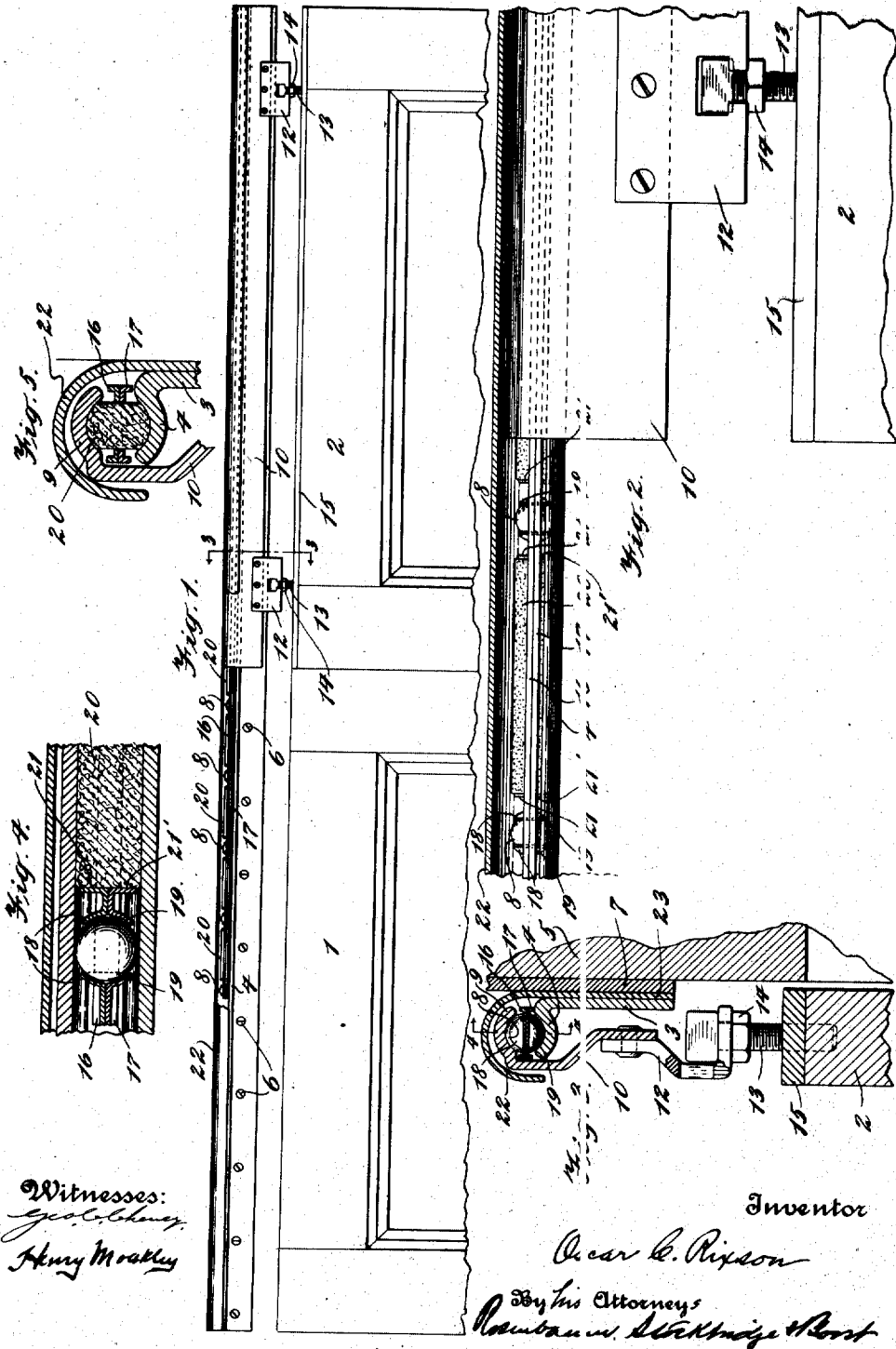


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GUIDE FOR DOOR HANGERS
APPLICATION FILED JAN. 2, 1915.

1,223,112.

Patented Apr. 17, 1917.



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GUIDE FOR DOOR-HANGERS.

1,223,112.

Specification of Letters Patent.

Patented Apr. 17, 1917.

Application filed January 2, 1915. Serial No. 41.

To all whom it may concern:

Be it known that I, OSCAR C. RIXSON, a citizen of the United States, residing at New Rochelle, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Guides for Door-Hangers, of which the following is a full, clear, and exact description.

This invention relates to door hangers and more specifically to the form of hangers which are adapted for sliding doors used in elevator shafts and similar places, the general construction of which comprises a fixed track carried by the supporting structure and a movable track carried by the door which is adapted, through the instrumentality of anti-friction devices, to be supported by and slide upon the fixed track so that the door may be rapidly and noiselessly moved to open or closed position, with little expenditure of energy. Hangers of this general character are well known and have been in common use, and it is the object of my invention to improve the details of the construction to produce a hanger in which the tracks and anti-friction devices will be at all times maintained clean and thoroughly lubricated, and in accordance with this object my invention contemplates providing a device such as a brush or pad, which may be carried by the spacer for the anti-friction devices, which brush is preferably saturated with a lubricant and arranged in wiping contact with one or both of the tracks and will, therefore, as it is moved relatively thereto, prevent any dust or dirt from accumulating on the tracks and at the same time thoroughly lubricate the moving parts.

Another object of the invention is to provide a door hanger in which the rattling or noise occurring by virtue of the movement of the track, spacer and anti-friction devices, is deadened so that the structure becomes practically noiseless in its operation.

Another object of my invention is to provide a door hanger in which all portions of the movable track rest directly on the anti-friction devices in both extreme positions of the door, or in any intermediate position thereof, whereby the tendency of the door to cantaliver, which is occasioned by permitting a part of the movable track in the extreme positions of the door to overlie or extend out a material distance beyond the last of the anti-friction devices, is

eliminated. A further object of the invention is to provide a simple construction by which the tracks and anti-friction devices are practically entirely housed and protected from the dust and dirt which might otherwise settle upon these parts.

With these and other objects in view my invention consists of the combinations and constructions which will be hereinafter described in detail and pointed out particularly in the appended claims.

In the accompanying drawings

Figure 1 shows a complete door hanger embodying the features of my invention, parts of which are broken away to more clearly show the various details of the construction;

Fig. 2 is an enlarged view of a portion of Fig. 1, showing more clearly the specific construction of the combined spacer and retainer and other features of the invention;

Fig. 3 is a transverse section of the hanger on the line 3—3 of Fig. 1;

Fig. 4 is a longitudinal vertical section of a portion of the hanger taken on the line 4—4 of Fig. 3; and

Fig. 5 is a transverse section similar to Fig. 3, showing in detail the construction of the brush.

In the drawings, I have illustrated my invention associated with a simple form of sliding door such as is commonly used in elevator shafts and like places, consisting generally of a panel 1, and a movable sliding door 2 which is adapted by means of a door hanger to be slid over the panel 1, the door being shown in its fully closed position in Fig. 1. Disposed at a suitable distance above the door and panel is a back plate 3 carrying at its upper end an offset portion which is grooved or bent to form a fixed track 4 upon which the anti-friction devices are adapted to roll. The back plate 3 is secured to the wall of the elevator shaft, or other supporting structure 5 by means of the screws or bolts 6, and if necessary, a spacer plate such as is shown at 7 may be used in order to provide the proper clearance for the door. The fixed track 4 extends the entire width of the panel and door, or in other words, is twice the width of the door, the purpose of which will be hereinafter referred to.

Arranged above the fixed track in a position to be supported thereon by suitable anti-friction devices such as balls 8, is a

movable track 9. In the preferred embodiment of my invention, this track forms an offset integral part of a downwardly extending plate 10 which has attached to its lower outer ends hanger straps 12. Hanger bolts 13 pass through suitable apertures in offset seats formed on these straps 12, and are rigidly secured to the same by nuts 14. The lower ends of the bolts 13, as is the usual construction, are threaded into a plate 15 secured to the top of the sliding door.

As will be clear from Fig. 3, these parts just described are so arranged that the weight of the door is suspended directly over the medial longitudinal lines of the fixed and movable tracks so that the latter will have no tendency to jump or otherwise leave the roller-bearing, if carelessly operated.

The balls 8 are maintained in proper relation to each other by a combined ball retainer and spacer comprising two separate plates 16 and 17, having flanged outer edges which give the necessary rigidity to the same. Openings are formed in each of the plates at suitably spaced distances, as for example, about three inches apart, in which openings the balls 8 are adapted to be positioned, and in order to retain the latter in place independently of the tracks with which they are designed to contact, end plates 16 and 17 are adjacent the openings provided with sockets formed by flanges or lips 18 and 19 respectively, which, with the openings for the balls, are provided by suitably cutting and stamping the plates. The lips on the plate 16 are curved upwardly, while the lips 19 on the plate 17 are curved downwardly, and the surfaces of the same which contact with the balls 8 are of a similar curvature so that while embracing the balls and holding them from displacement, they nevertheless permit the same to roll freely. In assembling the retainer, obviously the balls are first laid in the sockets of one of the plates and the other plate is placed over the balls and the two plates are then secured together. Interposed between each pair of balls, or if desired, only at suitable intervals along the combined ball retainer and spacer, is a brush 20 which, in one embodiment of the invention, consists preferably of a felt pad which is forced into a suitable opening cut in the plates 16 and 17, the end walls of the opening having bent up flanges 21 and 21', which engage with the ends of the pad. As shown in Fig. 5, the pad is of a suitable size to be in wiping contact with both tracks while the flanges 21 and 21' increase the rigidity of the pad so as to give it the necessary stiffness. As stated, the pad is preferably of felt, or some other absorbent material, and in installing the hanger, may be moistened with a suitable lubricant. When, therefore, the door

is moved to its open or closed position, the relative movement between the combined spacer and retainer and each of these tracks will cause the pad to move over the latter and thoroughly clean and lubricate them.

Another advantage of the pads is that they serve as sound-deadening means preventing the rattling of the spacer or any vibratory action of the tracks which would tend to make the hanger noisy in its operation.

The combined retainer and spacer is shown of a length which is half again the width of the door; or in other words, the width of the door, the length over which the anti-friction devices are extended, and the length of the fixed track, are in substantially the ratio of 2, 3 and 4. This insures that in each position of the door the entire weight of the same is equally distributed over a plurality of anti-friction devices or balls, for as is shown in Fig. 1, in its fully closed position, the balls and their retainer and spacer extend to the extreme righthand end of the fixed track. If now, the door were to be moved to its open position, since the balls are in rolling contact with both tracks, they will only move at half the speed of the movable track, and therefore when the door reaches its fully open position the movable track will again be supported throughout its entire length upon the anti-friction devices. This construction is important for the fact that any cantalivering of the door is prevented, which makes it possible to utilize a single row of balls interposed between the two tracks and without any tendency of the movable track to tilt or leave the fixed track when in either of the extreme positions of the door.

While in each position of the door a part of the combined ball retainer and spacer extends beyond the movable track yet this portion is, as is the remaining portion of the fixed track, protected from the accumulation of any dirt and dust thrown from above by a curved hood 22 integral with a plate 23 interposed between the back plate 3 and the spacer plate 7, and as will be clear from Figs. 3 and 5, the outer end of the fixed track 4 is in close proximity to the lower end of the curved hood 22, the longitudinal space or slot between the two only being sufficient to permit the movable plate 10 to readily slide therein. This construction, therefore, forms practically a closed housing which will prevent to a material extent any dirt or dust from entering and settling upon the surfaces of the tracks or on the balls and brushes which extend beyond the end of the movable track.

Claims.

1. In a door hanger, a fixed track, a movable track carrying the door, anti-friction devices interposed between and in rolling

contact with said tracks, a spacer for said anti-friction devices movable therewith, and lubricating pads carried by said spacer contacting with said tracks for cleaning and lubricating them and the anti-friction devices upon movement of said movable track.

2. In a door hanger, a fixed track, a movable track connected to the door, a hood extending over said fixed track the entire length thereof, anti-friction devices interposed between said tracks, a spacer and retainer for distributing said anti-friction devices over a length of said fixed track greater than the length of the movable track, lubricating pads carried by said spacer contacting with both tracks, said hood and fixed track having their free longitudinal edges adjacent to each other but spaced sufficient to provide a longitudinally disposed narrow opening in which the connection from the movable track to the door may slide, whereby said hood and fixed track form a substantially closed housing for said anti-friction devices and the surfaces of the tracks with which they contact.

3. In a door hanger, a fixed track, a movable track carrying the door, balls interposed between said tracks, a spacer for said balls comprising a relatively long narrow plate having spaced openings therein in which said balls rest, ears surrounding said openings embracing said balls and retaining them in position, said plate having other openings therein intermediate said first named openings, and brushes of absorbent

material secured in said last openings, said brushes being of a size to contact with both of said tracks.

4. In a door hanger, a fixed track, a movable track connected to the door, a hood extending over said fixed track the entire length thereof, anti-friction devices interposed between said tracks, a spacer and retainer for distributing said anti-friction devices over a length of said fixed track greater than the length of the movable track, said hood and fixed track having their free longitudinal edges adjacent to each other but spaced sufficient to provide a longitudinally disposed narrow opening in which the connection from the movable track to the door may slide, whereby said hood and fixed track form a substantially closed housing for said anti-friction devices and the surfaces of the tracks with which they contact, and means carried by said spacer for cleaning and lubricating said tracks.

5. In a door hanger, a fixed track, a movable track carrying the door, anti-friction devices interposed between and in rolling contact with said tracks, a spacer for said anti-friction devices movable therewith, and pads carried by said spacer contacting with said tracks.

In witness whereof I subscribe my signature in the presence of two witnesses.

OSCAR C. RIXSON.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."