Aug. 16, 1927. 1,639,378

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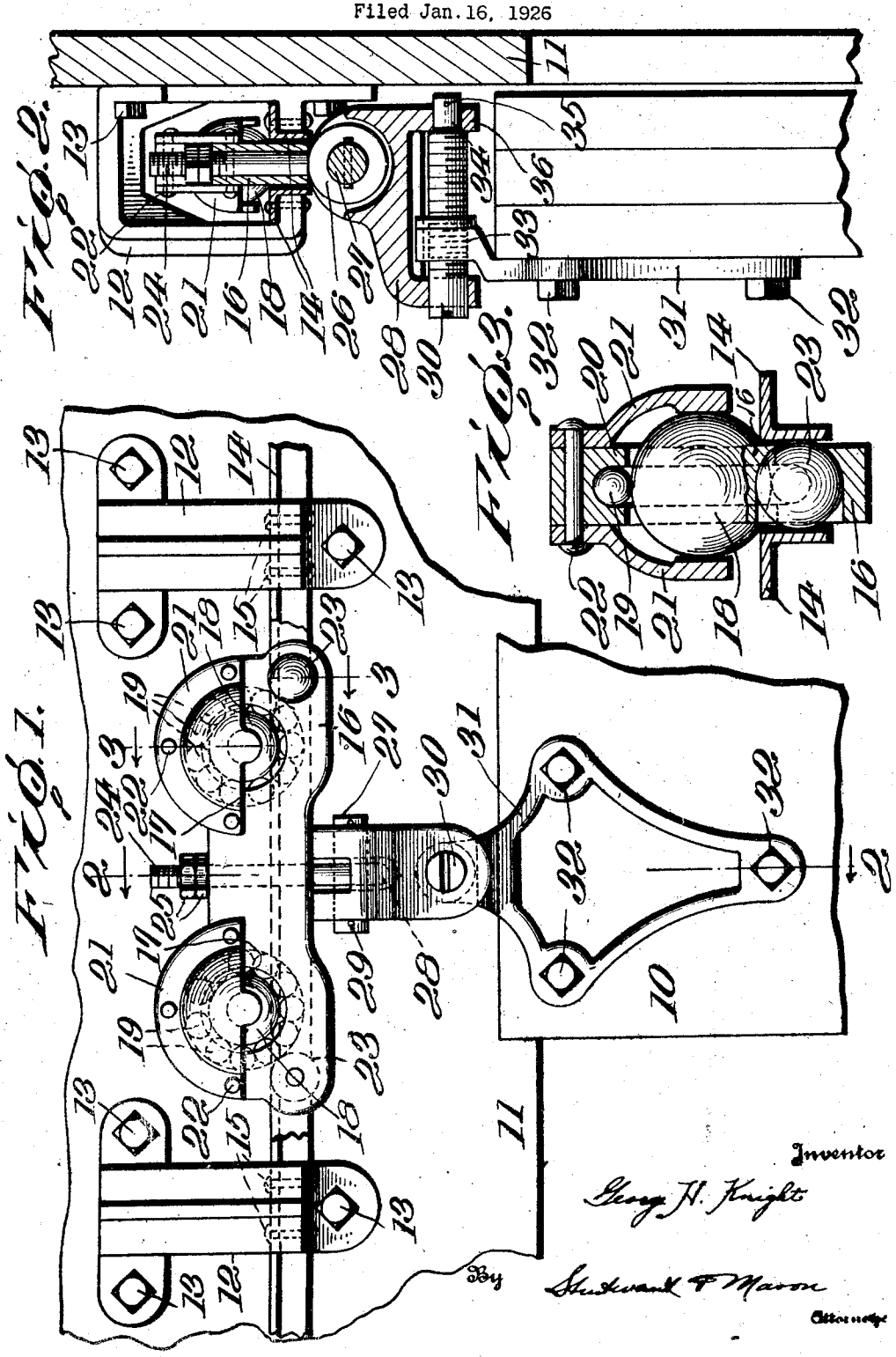
Filed Jan. 16, 1926



Patented Aug. 16, 1927. 1,639,378

UNITED STATES PATENT OFFICE.

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DOOR HANGER.

Application filed January 16, 1926. Serial No. 81,752.

This invention relates to certain new and useful improvements in door hangers, more particularly such devices of the sliding type.

One of the objects of this invention is to provide such door hangers with antifriction guiding elements to facilitate the movement of the door along its track.

A further object is to provide a guide for the door hanger which maintains the traveling carriage in a definite relation to the rails, and permits the door to yield under the conditions of use.

Another object is to provide a door hanger and carriage construction in which the door bracket may be adjusted with regard to the line of the rails, so that the door is at all times suspended in a predetermined relation beneath the rails.

With these and other objects in view, as will appear in the course of the following specification and claims, there is shown by way of example on the accompanying drawings, a door hanger embodying the present invention.

On the drawings:

Figure 1 is an elevation of one of the new door hangers applied to a sliding door, and showing sections of the track rail.

Fig. 2 is a section substantially on line 2—2 of Fig. 1.

Fig. 3 is a section on an enlarged scale substantially on line 3—3 of Fig. 1.

On the drawings, 10 designates a sliding door and 11 the wall of the building having an aperture therein to be closed by the door. The brackets 12 are secured to the wall 11 by bolts 13 and support the track rails 14—14, which are secured thereto by the pins 15. These track rails are spaced apart a sufficient distance to receive the cheek plates 16 of the carriages. These cheek plates have circular holes 17—17 therethrough for the passage of the ball-bearings 18. These ball-bearings rest upon the respective rails as shown in Fig. 3, and are in turn supported by the smaller bearing balls 19 which are carried in channels 20 in the cheek plates 16. The caps 21 are provided to prevent the balls 18 from moving laterally and thus releasing the supporting balls 19 from their grooves. These caps 21 are secured in place by suitable bolts or rivets 22.

The guide balls 23 are carried in pockets of the cheek plates 16, as shown by Fig. 3, between the rails 14, so that the carriage is substantially prevented from a rocking movement about a line passing through the centers of balls 18, by the engagement of the balls 23 with one or the other track. These pockets are provided adjacent the ends of the carriage and are open at respective opposite sides for the full diameter of the respective balls 23, and have an aperture at the other side of less diameter than the ball, so that the ball is positively retained within the pocket for the guiding effect in one direction, which effect is relatively opposite as between the two ball and pocket arrangements.

The cheek plates 16 have a vertical bore hole therethrough between the respective journals of the balls 18, to receive the suspension bolt 24 which is held in adjusted position by the nuts 25. The lower end of this bolt 24 is formed with an eye 26 which engages the pin 27, which in turn supports the shackle 28. Suitably retained pins 29 are provided to prevent endwise movement of the pin 27. The shackle 28 has a threaded spindle 30 carried in the lower end thereof. The door bracket 31 is bolted to the door 10 by bolts 32, and has a nut 33 at its upper end to engage the threaded spindle 30 of the door shackle 28. As the threaded spindle is rotated, the door is moved nearer to or farther from the wall 11, to adjust the separation of the door therefrom as necessity may require. The threaded spindle 30 is maintained in position by the engagement of its shoulder 34 and its pin 35 against offset sides of the depending wall 36 of the shackle 28.

The operation of the device is as follows: The balls 18 rotate upon the tracks 14 and are supported by the antifriction bearing balls 19 with regard to the cheek plates 16, so that the device moves freely back and forth along the rails 14. The vertical position of the door may be adjusted by the nuts 25 as desired, which adjustment may be accomplished without strain upon the respective carriages, since the door pivots freely about the respective bolts 30. The door may be adjusted nearer to or farther from the wall 11 by rotation of the threaded spindles 30 as described above. During its movement, the door is carried by the carriages, and is free to move with respect to these carriages, and the carriages are free to move individually with respect to the door, by

reason of the permissive rotations about the threaded spindles 30 and the pins 27, which are respectively at right angles to each other. The carriages are supported upon the balls 18, and are prevented from rocking laterally about an axis passing through the centers of balls 18 by the engagement of the balls 23 against the depending faces of the tracks 14.

It is apparent that the device is not limited to the specific embodiment shown, but that any modifications may be made therein within the scope of the appended claims.

I claim:

1. In a hanger for a sliding door adapted to move upon spaced parallel tracks, a carriage having a depending portion extending downwardly between the tracks, means to support said carriage for movement along said tracks, and to prevent a relative rocking of said carriage about an axis perpendicular to the line of the tracks, said carriage having a pocket therein at one side opposite one of said tracks, and a ball located in said pocket to engage said track to hold said carriage against a rocking movement about an axis parallel to the line of the tracks, and door supporting devices carried by said carriage.

2. In a hanger for a sliding door adapted to move upon spaced parallel tracks, a carriage having a depending portion extending downwardly between the tracks, a plurality of supporting balls for said carriage for movement along said tracks, said balls being spaced apart longitudinally of the track to prevent a relative rocking of said carriage about an axis perpendicular to the line of the tracks, said carriage having pockets in each side of said carriage opposite said tracks and spaced apart along the line of the tracks and a ball located in each of said pockets to engage said track to hold said carriage against a rocking movement about an axis parallel to the line of the tracks, each of said pockets having a hole at its bottom of a diameter less than that of said respective ball, and door supporting devices carried by said carriage.

In testimony whereof, I affix my signature.

GEORGE H. KNIGHT.