

A. J. SPICER.
DOOR HANGER.
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1,364,592.

Patented Jan. 4, 1921.

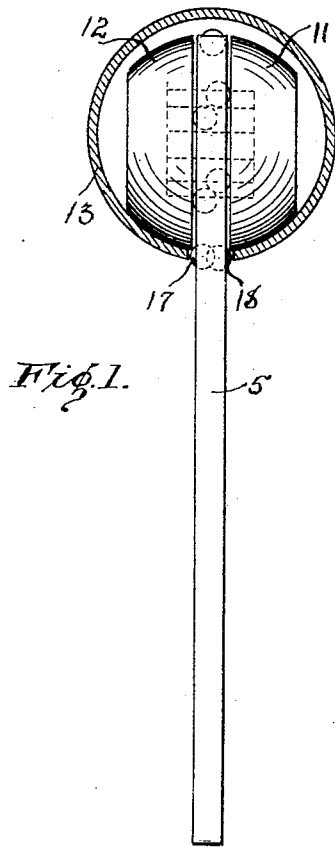


Fig. 1.

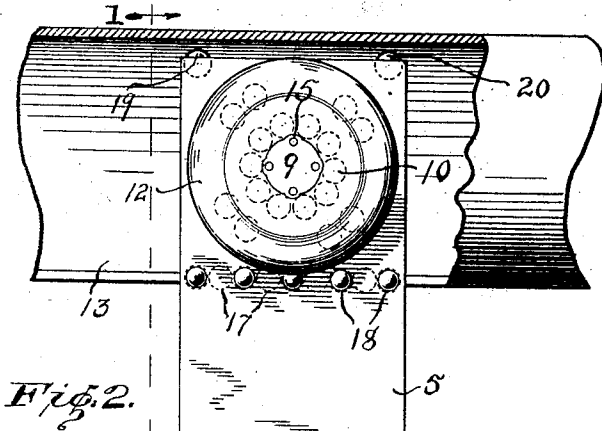


Fig. 2.

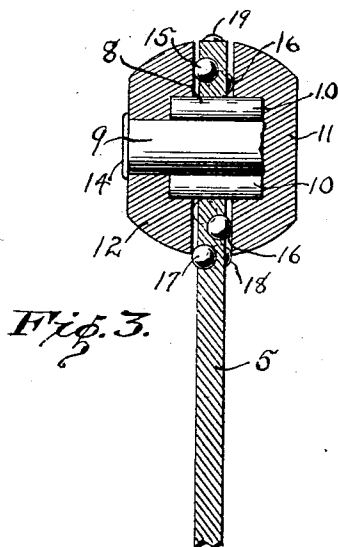
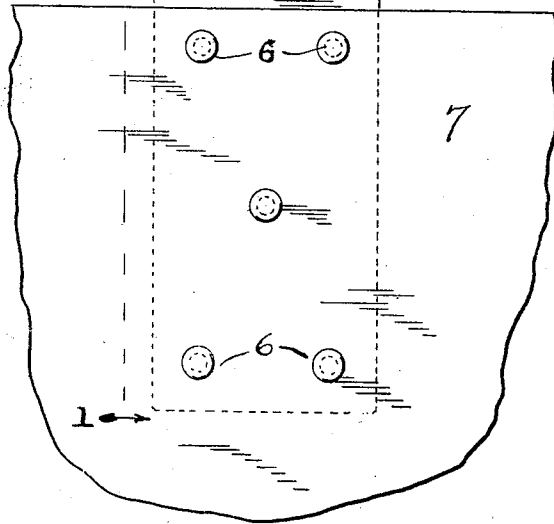


Fig. 3.

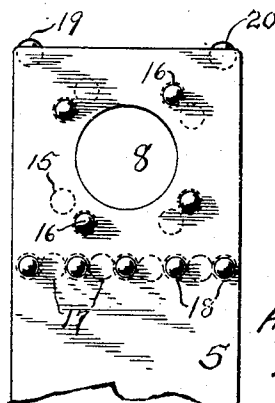


Fig. 4.

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DOOR-HANGER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANDREW J. SPICER, a citizen of the United States, and resident of Franklin, in the county of Johnson and the State of Indiana, have invented a new and useful Improvement in Door-Hangers, of which the following is a specification.

The hanger is for the suspension of sliding doors and is of a type comprising a plate supported between a pair of rollers utilizing a split pipe for a track. The object of the invention is to equally distribute the load to both rollers and prolong the life and free action of the hanger under normal conditions of suspension of the load and also to keep the suspension plate from binding against the slot of the track under lateral pressure and to prevent binding of the parts within the track against the top of the latter.

I accomplish the above, and other objects which will hereinafter appear, by the mechanism illustrated in the accompanying drawings, in which—

Figure 1, is an end elevation showing the hanger in position within a suitable supporting track; Fig. 2, a side elevation of the hanger in a tubular track partly in longitudinal section; Fig. 3 a transverse vertical section and Fig. 4, a side elevation of the upper end of the suspension plate.

Like characters of reference indicate like parts throughout the several views of the drawing.

Referring to the drawing 5 is a suspension plate of any desired and suitable size, shape and material. It has holes through its lower end for bolts 6 by which it is fastened to a door 7 to be suspended. Near its upper end is a circular opening 8, adapted to receive a spindle 9, and a surrounding annular row of rollers 10, which fill it in the manner shown. The spindle 9 is integral with a roller 11, and is long enough to pass through a roller 12, located on the opposite side of the plate 5 from roller 11. The rollers 11 and 12 each have a segmental face contacting the track, the curvature of which corresponds with the curvature of the interior of the tubular track which is shown at 13. The spindle may be retained in the above assembly in any desired manner as by heading it over in full as shown at 14 in Fig. 3 or by separate punchings at 15 in Fig. 2. It will be noted that the rollers 10 extend an appre-

ciable distance into the rollers 11 and 12, which equalizes the load distribution to both of the latter and distributes it over a correspondingly greater surface of the spindle, greatly relieving the latter of the tendency to break it in two by a heavy concentrated load as well as from a concentrated wear.

The suspension plate 5 is kept evenly spaced between the two rollers 11 and 12, by an annular series of ball bearings on each side of the former. These are shown at 15 and 16. Suitable sockets are drilled into the plate deep enough to let the balls in more than half of their diameters; then the metal is headed over sufficiently to retain the balls in their seats.

Friction between the plate 5 and the sides of the slot in track 13 through which the plate passes, is reduced by a row of balls 17 and 18, which are seated below their middles in sockets in plate 5, in the manner above described for the balls 15 and 16. In both cases it will be noted that the balls on one side are staggered with relation to those on the other to avoid interference with each other.

When the load is tilted out of normal in its own vertical plane there is a tendency to cause the hanger to clamp and bind against the top of the tubular track. This is largely prevented by corner balls 19 and 20 seated in corner extensions of the plate 5, as shown.

I claim:

1. The combination with a tubular track having an underside channel, a pair of rollers in the track one of which has an integral spindle, a plate mounted between the rollers and having an opening through which the spindle passes, said spindle also passing through the other roller, the adjacent faces of the two rollers having annular recesses around the spindle, and an annular row of rollers surrounding the spindle and having their ends inserted in the annular recesses of the two first rollers and directly contacting with and supporting the rollers.

2. The combination with a tubular track having an underside channel, a pair of rollers in the track one of which has an integral spindle, a plate mounted between the rollers having an opening through which the spindle passes, said spindle also passing through the other roller, the upper end of the plate being substantially horizontal forming corners, friction balls seated in the corners to

contact the inner top of the track when the hanger is tilted, the adjacent faces of the two rollers having annular recesses around the spindle, and an annular row of rollers
5 surrounding the spindle and having their ends inserted in the annular recesses of the two first rollers and directly contacting with and supporting the rollers.

3. The combination with a pipe track
10 having an underside channel, of a plate passing through the channel, a pair of rollers in the track one on each side of the plate one of the rollers having an integral spindle and the other having a central opening
15 through which the spindle passes after pass-

ing through the plate, both rollers having an annular recess around the spindle, a series of roller bearings surrounding the spindle with their ends in each of said channels, a series of ball bearings in each side
20 of the plate outside of the roller bearing series, and means to prevent the hanger thus formed from binding in the track, said means comprising ball bearings in the upper
25 end of the plate and a row on each side of the plate opposite the edges formed by the channel in the track.

Signed at Indianapolis, Indiana, this the 3rd day of June, 1920.

ANDREW J. SPICER.