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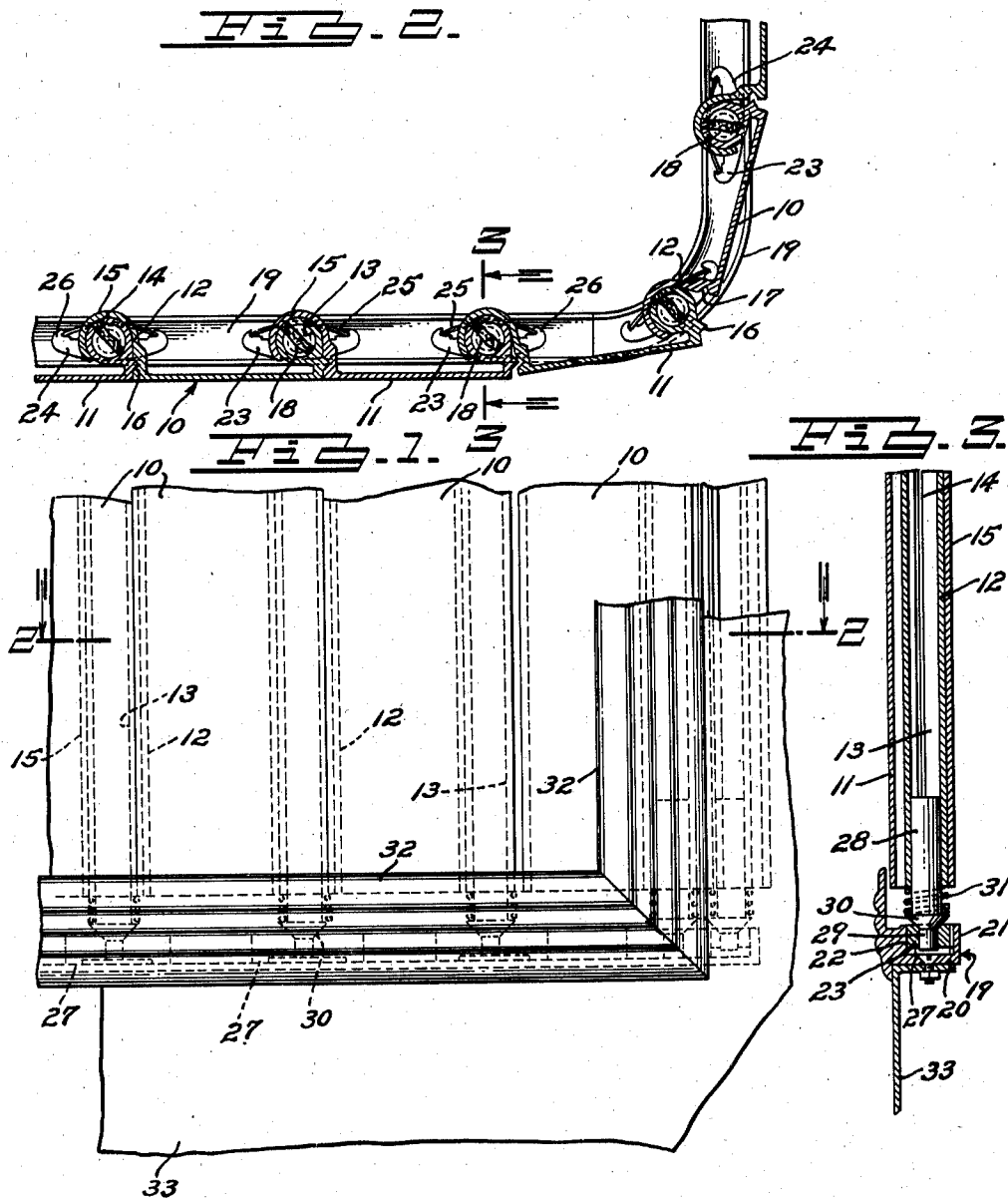
E. K. PILCHER

2,293,306

ROLLING DOOR

Original Filed Nov. 1, 1939

2 Sheets-Sheet 1



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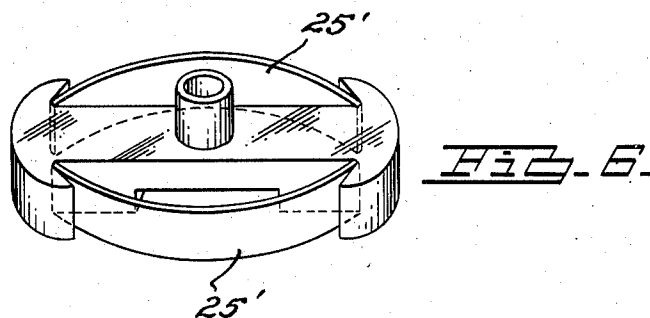
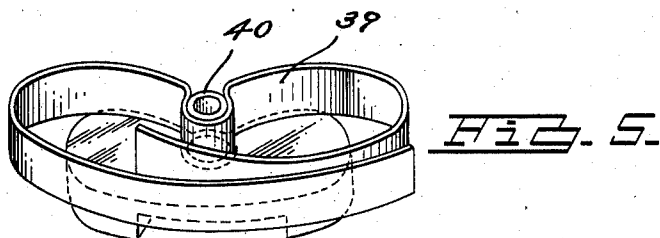
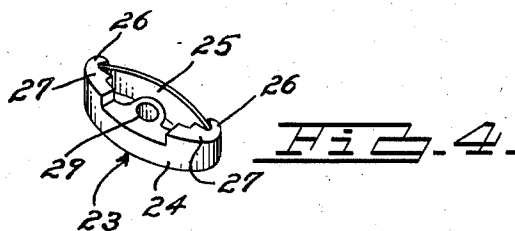
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,293,306

ROLLING DOOR

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Original application November 1, 1939, Serial No.
302,402. Divided and this application April 1,
1940, Serial No. 327,102

5 Claims. (Cl. 16—93)

This invention relates to a rolling door of the type in which a plurality of slats are hinged together and guided at their ends to provide a door capable of moving around a corner to cover an opening.

This application is a division of my application Serial No. 302,402, filed November 1, 1939, which has matured into Patent No. 2,257,513, and which claims particular slat construction.

The object of this invention includes the following:

The provision of improved shoes for supporting the ends of the slats. These novel shoes engage at least one side wall of the track with a flexible surface that permits shifting of the center of pressure as the shoes ride around a curve in the track, and furnishes non-rattle support for the door.

The provision of improved means for mounting the shoes on the slats. This means permits lateral yielding of the slats and insures smooth working of the door even if the track is considerably out of alignment.

These and other objects and advantages of the invention will become apparent as the description proceeds.

While a preferred form of the invention is disclosed herein for purposes of illustration, various changes may be made in the structure without departing from the spirit of the invention as herein set forth and claimed.

In the drawings:

Fig. 1 is a plan view of part of a rolling door incorporating the invention.

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

Fig. 3 is a section taken on line 3—3 of Fig. 2.

Fig. 4 is a perspective of a supporting shoe as used in the structure shown in Figs. 1 to 3.

Figs. 5 and 6 are perspective views of modified shoes.

Referring to the drawings more particularly, the rolling door is made up of a plurality of slats 10, each formed from a piece of material of the cross-sectional shape illustrated in Fig. 2. It will be clear from this figure that the section includes a flat body part 11 which has extending rearwardly along one edge an inner joint member in the form of a tubular bead 12 having a bore 13 and a slot or channel 14 opening outwardly from the bore on the side of the bead away from the flat body. Extending rearwardly along the opposite edge of the body 11 is an outer joint member in the form of a hook flange 15 which is partly tubular in shape and has an interior bore of a size to closely engage around the

tubular bead 12 of an adjacent slat. For centering the slats and aligning them with each other, one edge of the slat may carry a rib 16 which is adapted to engage in a similarly formed groove 17 in an adjacent edge of the next slat.

The two sides of the rolling door are supported and guided by track members 19, each of which is substantially U-shaped in cross section and includes a bottom wall 20 and side walls 21 and 22, in which ride shoes 23 pivoted on the ends of the slats. The form of shoe illustrated in Fig. 5 includes a crescent shaped body having a curved wall 24 adapted to engage one side wall of the track 19. On the opposite side of the shoe a curved piece of flat spring stock, which is held in place by body flanges 26, forms a flexible wall engaging the other side wall of the track. The end of the body that faces outwardly away from the slat member and engages the bottom wall 20 of the track has its central part cut away so as to leave two sliding surfaces 27, thus reducing the friction between the shoe and the track.

Each of the shoes is mounted on a slat by means of a pintle 28 of a form clearly shown in Fig. 3. The inner end of this pintle extends slidably into the bore 13 of the inner joint member, and the outer end of the pintle projects into a socket 29 formed in the shoe. A collar 30 engages the inner part of the shoe body, and a spring 31 surrounding the pintle provides a yielding cushion between the shoe and the slat. The shoe 23 is free to rotate on the pintle 28.

When the parts are assembled as shown in Figs. 1, 2 and 4, the slats are yieldably centered by springs 31, and this arrangement permits smooth and easy operation of the door even though the frame is considerably out of true alignment. When the door is rolled around a corner as in Fig. 2, the flexible wall 25 of each shoe permits a shifting of the center of pressure, thus avoiding any binding tendency. The construction described also provides a full spring suspension that prevents noise and rattle.

In order to cover the opening between the ends of the slats and the track 19, an ornamental molding 32 may be formed in one piece with the track 19 as illustrated in Fig. 3. Fig. 3 also shows one manner of mounting the track upon a frame part 33 of a building, freight car, or some similar structure.

Alternate forms of flexible shoes are illustrated in Figs. 5 and 6, the shoe illustrated in Fig. 6 is substantially like that of Fig. 4 except that it has a flexible spring strip 25' on both sides of

the body, and hence has a flexible engagement with both side walls 21 and 22 of the track member. In the form of shoe illustrated in Fig. 5 a single piece of spring stock 39 is bent so as to have a substantially pretzel-shaped outline, and is snapped over a hub 40 projecting from the shoe. This shoe has flexible and resilient support against the side walls 21 and 22 of the track.

The novel features described above cooperate to form a simple and efficient rolling door which can be economically manufactured and which maintains its operating efficiency under adverse conditions.

I claim:

1. In a sliding closure of the type in which a plurality of slats are hinged to each other and are slidably guided adjacent their ends by a guideway, the improvement comprising a guide-shoe for each end of each of said slats, said shoe being arranged to slide in said guideway, pivot means engaging said shoe and said slat whereby said shoe and said slat may have pivotal movement with respect to each other, and resilient means forming an outer wall of said shoe and extending on each side of said pivot means, said resilient means being arranged and formed to slidably engage a surface of said guideway whereby said slats may be yieldably centered when traversing curved portions of said guideway.

2. The structure of claim 1 wherein said resilient means comprises a spring strip held in an outwardly bowed position by notches in said shoe engaging the ends of said strip.

3. In a sliding closure of the type in which a

plurality of slats are hinged to each other and are slidably guided adjacent their ends by a guideway, the improvement comprising a guide-shoe for each end of each of said slats, said shoe being arranged to slide in said guideway, pivot means engaging said shoe and said slat whereby said shoe and said slat may have pivotal movement with respect to each other, and resilient means forming opposed walls of said shoe and extending on each side of said pivot means, said resilient means being arranged and formed to slidably engage a surface of said guideway whereby said slats may be yieldably centered when traversing curved portions of said guideway.

4. The structure of claim 3 wherein said resilient means comprises a pair of opposed spring strips held in an outwardly bowed position by opposed notches in said shoe respectively engaging the ends of said strips.

5. In a sliding closure of the type in which a plurality of slats are hinged to each other and are slidably guided adjacent their ends by a guideway, the improvement comprising pivot means for each end of each of said slats arranged to slide in said guideway, said pivot means and said slat being arranged to have movement with respect to each other, and resilient means engaging said pivot means and extending on each side of said pivot means, said resilient means being arranged and formed to slidably engage a surface of said guideway whereby said slats may be yieldably centered when traversing curved portions of said guideway.

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