

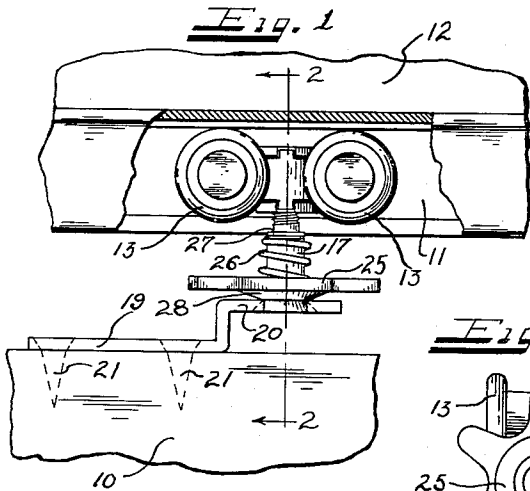
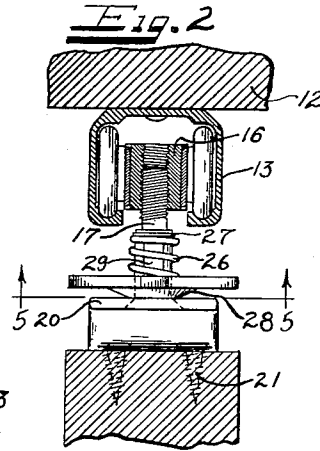
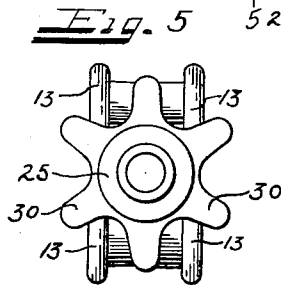
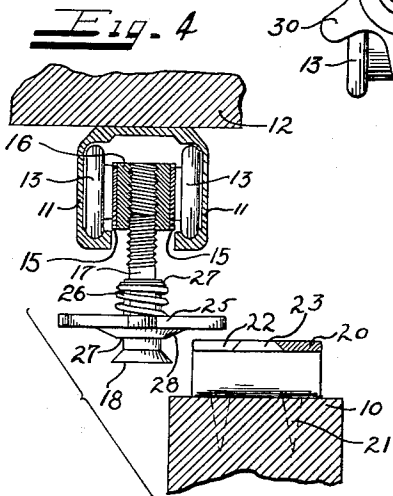
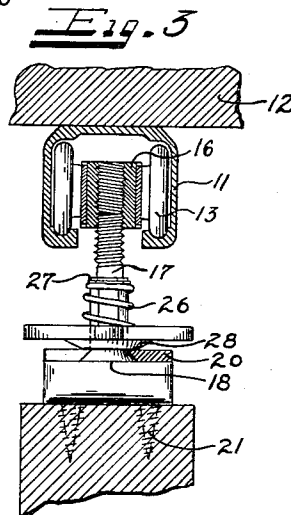
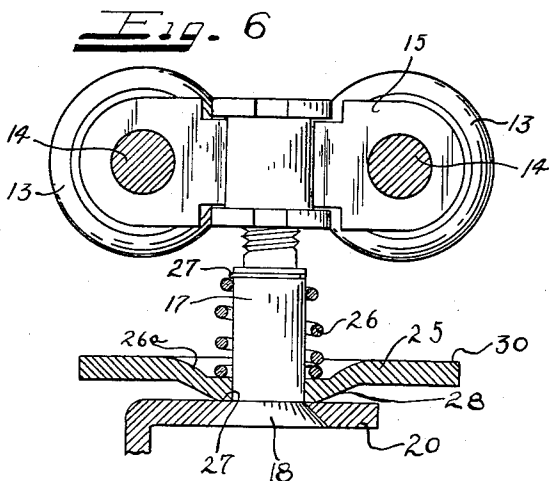
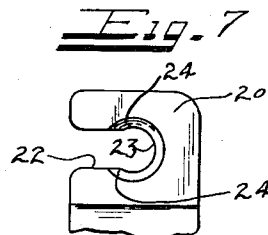
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SLIDING DOOR HANGER ASSEMBLY

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3,118,170

SLIDING DOOR HANGER ASSEMBLY

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5 Claims. (Cl. 16-105)

This invention relates to a sliding door hanger assembly and more particularly to hanger assemblies of this type wherein a stem having an enlarged head at its lower end is receivable within an open ended slot provided in a plate or arm fixed on the door to establish a connection between an overhead track engaging carrier and the door to be suspended therefrom in such a way that the connection may be readily locked in service position and yet readily unlocked or released when desired without disturbing a selected vertical adjustment of the door relative to the carrier.

A further object is to provide an improved hanger assembly having features of construction and design which facilitate installation procedures and which also renders the assembly simple and economical as well as sturdy.

A further object resides in the use of improved means for preventing unintentional disconnection of the cooperating parts in spite of relatively severe operating conditions.

A further object resides in the use of improved means for selectively raising or lowering the position of the door relative to the track engaging carrier in order to facilitate adjustment of the door along the vertical dimension of the opening in which the door travels between open and closed positions.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings, wherein:

FIG. 1 is a side elevation, partly in section, illustrating the present hanger assembly as applied to a door and a track in overhead relation to said door.

FIG. 2 is a vertical sectional view taken along line 2-2 of FIG. 1, with parts in elevation.

FIG. 3 is a similar view illustrating the door in a lower adjusted position relative to the adjusted vertical position shown in FIG. 2.

FIG. 4 is a similar view illustrating the door and the track engaging member in disconnected relation.

FIG. 5 is a view taken upwardly along line 5-5 of FIG. 2.

FIG. 6 is an enlarged side elevation with parts removed to show details of parts of the present hanger assembly not revealed in FIG. 1.

FIG. 7 is a fragmentary detail view of the slotted arm portion of the present hanger assembly.

Reference being had more particularly to the drawings, numeral 10 designates a door of a type suitable for horizontal movement on overhead track members 11 fixed along the upper limits 12 of a doorway in which said door is operated between open and closed positions by means of a hanger assembly embodying the present invention.

The hanger assembly, in accordance with a preferred embodiment of this invention, includes a carrier body having a set of rollers 13 for engagement with the track members 11. As shown, the rollers 13 are arranged in pairs and mounted on axles 14 carried at opposite ends of the carrier body which is made up of two vertically arranged metal straps 15. Each strap 15 is curved outwardly medially of the distance between axles 14 to provide an open area in which an internally threaded socket member 16 is confined and securely fixed for reception of a threaded stem 17 extending upwardly into said socket member. The portion of the stem 17 extending downwardly from said socket 16 terminates in an enlarged circular head 18. The head 18 is bevelled outwardly and downwardly along its outer edge. Stem 17 provides a

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connection between the carrier body and the door 10 by means of a door mounting bracket having a base portion 19 and an arm portion 20 forming an upwardly offset extension of the base portion 19. The base portion 19 is secured to the upper edge of the door 10 by means of screws 21 fitted through openings in said base portion 19 whereby the arm portion 20 occupies a position in upwardly spaced relation to the upper edge surface of the door 10.

A key-hole shaped slot 22 extending inwardly from an edge portion of the arm 20 is of such dimension as to admit the stem 17 therein with the head 18 occupying a position in underlying relation to said arm 20. The inner limits of the slot presents a circular edge which is bevelled downwardly and outwardly to define a seat 23 complementary to the shape of and fitting closely with the bevelled edge of the head 18. The junction between the seat 23 and the opposite edges of the slot 22 leading to said seat defines shoulders 24 with which the edge of the head 18 has engagement to resist withdrawal of the head from an operative position within the confines of said seat.

An annular abutment member or retainer 25 slidably supported on the stem 17 for relative movement axially of the stem is effective to prevent unintentional withdrawal of the stem 17 from the slot 22 under downward pressure applied on the retainer 25 by a coil spring 26. The latter is wrapped about the stem 17 and acts upwardly against a fixed shoulder 27 on the portion of the stem 17 extending below the socket 16. While the retainer 25 is accordingly biased to occupy a position effective to normally resist withdrawal of the stem 17 from the slot 22, the spring 26 is compressible to allow the retainer 25 to move away from the head 18 and thus allow the head 18 to become unseated and the stem 17 thereby freed for intentional removal from the arm 20.

It will be noted from the drawings that the retainer 25 is offset downwardly throughout a central area surrounding the stem 17 to provide a downwardly facing bearing surface 27 of relatively limited area with which the surface of the arm 20 facing said retainer has engagement while the lower surface of the retainer 25 surrounding said bearing surface 27 is in upwardly spaced relation to the upper surface of the arm 20. The junction between said bearing surface 27 and the lower surface of the retainer 25 surrounding said bearing surface 27 is defined by a downwardly and inwardly bevelled shoulder 28 which cooperates with the bevelled edge of the head 18 to provide complementary guides to facilitate entry of the bracket arm 20 therebetween incident to movement of the arm 20 into a position to admit the stem 17 into the slot 22. The area of the upper face of the retainer 25 opposite the bearing surface 27 presents a circular upwardly open cavity 26a in which the lower end portion of the coil spring 26 is nested.

While the retainer 25 is thus axially slidable on the stem 17 to accommodate engagement and disengagement of said stem 17 and arm 20, the retainer 25 is held against rotation relative to said stem about said stem as an axis by means of interengagement of the retainer 25 with a flat section 29 on the stem as shown in FIG. 2. The stem 17 is thereby turned axially upwardly and downwardly of its threaded connection with the socket 16 to lower or to elevate the door 10 relative to the rollers 13 by rotation of the retainer 25. The retainer 25 is readily turned to effect such movement of the stem 17 and resulting adjustment of the door 10 by means of fingers 30 extending radially from said retainer. It will be noted that the fingers 30 are of such length as to project beyond a vertical projection of the edges of the arm extending lengthwise of the upper edge of the door 10. Therefore convenient access to said fingers is obtainable from a

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position below the upper edge of the door 10 whereby adjustment of the door 10 upwardly and downwardly of the rollers 13 is greatly facilitated.

The present invention accordingly provides a hanger for sliding door installations featuring adjustment means operative to effect desired raising or lowering of the door relative to the hanger in a simple and rapid manner after the door is installed.

The retainer 25 is preferably of molded synthetic resin composition, such for example as nylon. The retainer accordingly has smooth, self-lubricating engagement with the spring 26, stem 17 and the surface of the arm 20 along edges of the slot 26 while also providing an actuating member of sturdy design and construction.

What is claimed is:

1. A sliding door hanger assembly including a track engaging carrier having a body member, a door mounting bracket defined by a second member, a stem having screw threaded connection with one of said members, there being a slot in the other of said members into which said stem has entrance in a path extending radially of the axis on which said stem turns in said threaded connection, an enlarged head at the projecting end of said stem, a seat at the inner end of said slot with which said head has engagement along the surface of said head facing toward the member in which the stem has threaded connection, a retainer slidably fitted on said stem for movement axially of said stem and fixed against movement relative to said stem about said stem as an axis, means operative to bias said retainer into seated engagement with the slotted member along surfaces of the latter opposite those engaged by said head and thereby prevent unintentional withdrawal of said head from said seat at the inner end of said slot, said means including a coil spring surrounding said stem, said retainer having seated engagement with said slotted member only along the surface of a central axially offset face portion of said retainer, and there being a central cavity in the opposite face of said retainer complementary to said central axially offset face portion in which one end of said spring is confined, and fingers extending radially from said retainer to facilitate manipulation of the latter to turn the stem about its screw threaded connection to selectively vary the distance between said carrier and said door mounting bracket,

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2. A sliding door hanger assembly according to claim 1, wherein a shoulder on said stem engages the end of the spring facing away from the retainer.

3. A sliding door hanger assembly according to claim 1, wherein said retainer is of synthetic resin composition.

4. A sliding door hanger assembly according to claim 1, wherein said fingers extend radially beyond a vertical projection of the opposite limits of the bracket which extend lengthwise of the path of sliding movement of the door.

5. A sliding door hanger assembly including a track engaging carrier having a body member, a door mounting bracket defined by a second member, a stem having screw threaded connection with one of said members, there being a slot in the other of said members into which said stem has entrance in a path extending radially of the axis on which said stem turns in said threaded connection, an enlarged head at the projecting end of said stem, a seat at the inner end of said slot with which said head has engagement along the surface of said head facing toward the member in which the stem has threaded connection, a retainer slidably fitted on said stem for movement axially of said stem and fixed against movement relative to said stem about said stem as an axis, and a spring acting on said retainer to bias the latter toward said head whereby said retainer is engageable with the slotted member along surfaces of the latter opposite to that engaged by said head to yieldably resist unintentional withdrawal of said head from operatively engaged relation with said seat on the slotted member, fingers extending radially from said retainer to facilitate manipulation of the latter to turn the stem about its screw threaded connection to vary the distance between said track engaging carrier and said door mounting bracket, said retainer and fingers comprising an integral body of synthetic resin composition.

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