

July 21, 1964

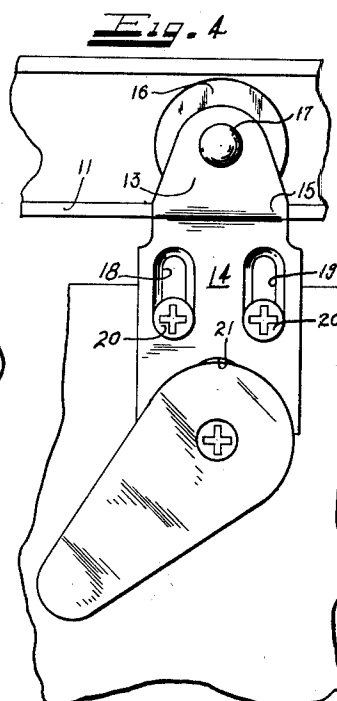
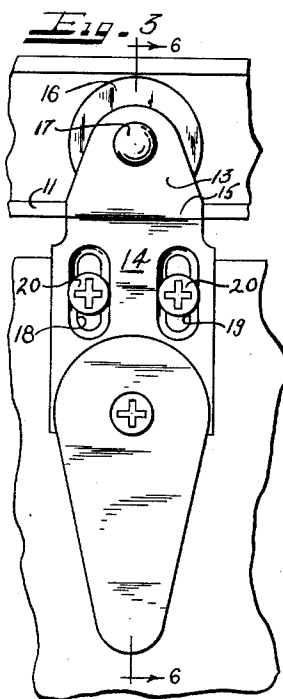
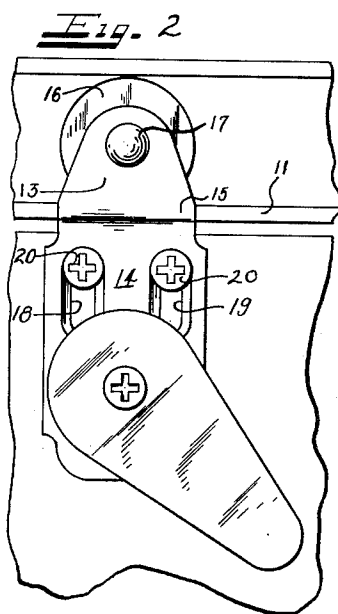
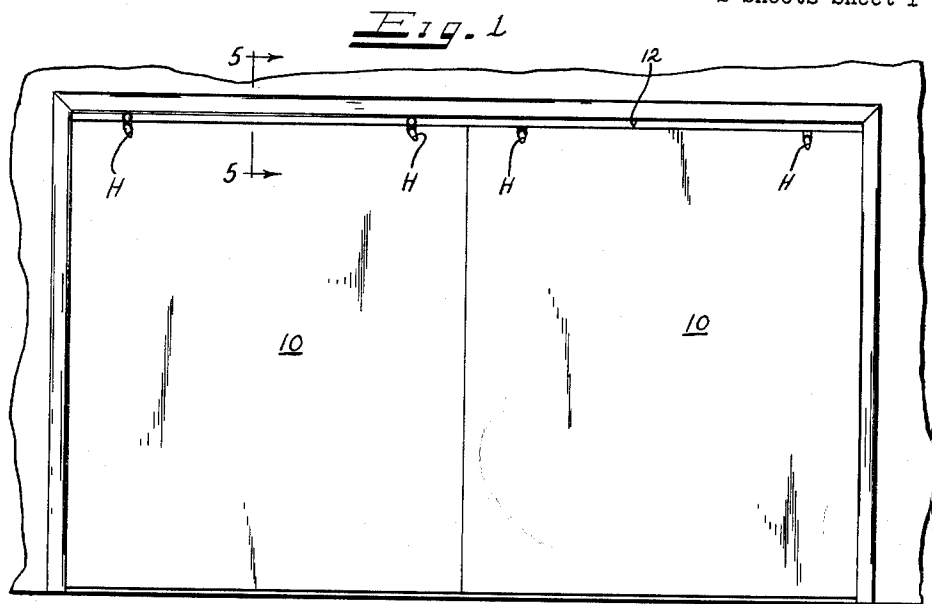
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3,141,189

VERTICALLY ADJUSTABLE PANEL HANGER

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2 Sheets-Sheet 1



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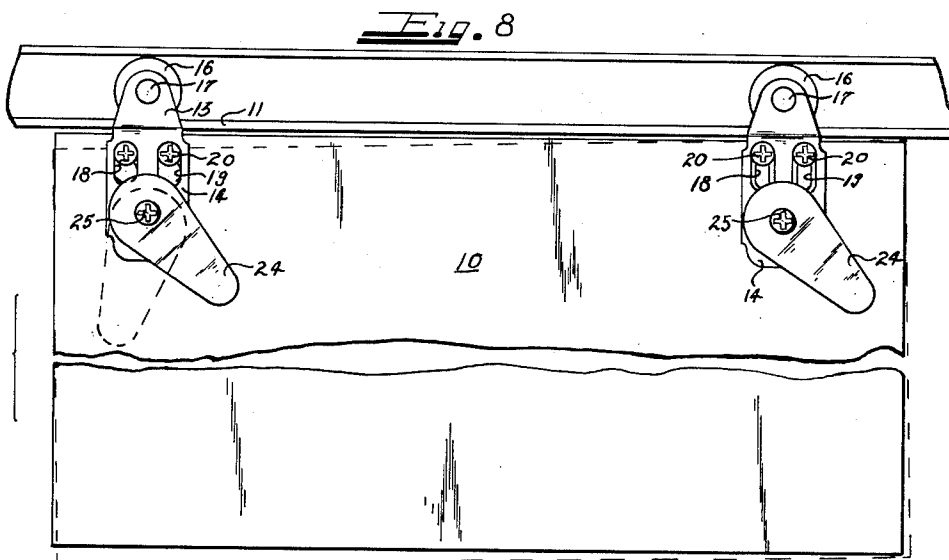
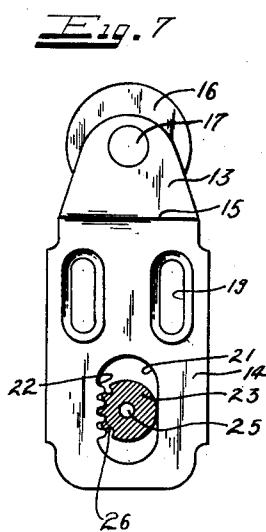
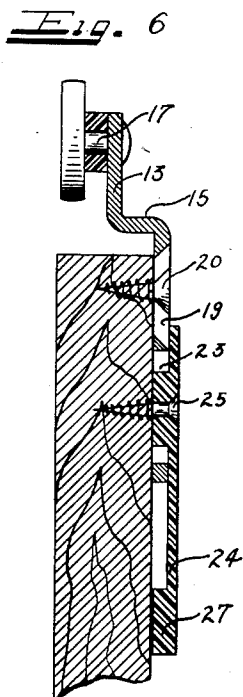
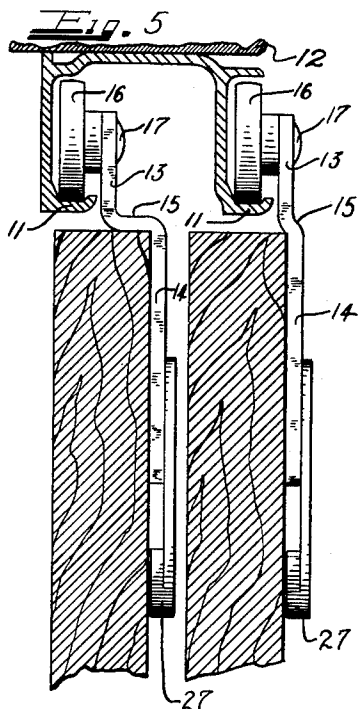
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VERTICALLY ADJUSTABLE PANEL HANGER

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2 Sheets-Sheet 2



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VERTICALLY ADJUSTABLE PANEL HANGER
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1 Claim. (Cl. 16—105)

This invention relates to certain new and useful improvements in the design and construction of an adjustable hanger for sliding door installations.

In connection with the installation of doors which operate between closing and opening positions by means of rollers which ride fore and aft of an overhead track, it is desirable to provide for convenient adjustment of the doors toward and away from the overhead track so as to readily maintain the door in correct alignment with the limits of the doorway with which the door is operatively associated.

It is accordingly an object of this invention to provide an improved hanger unit for sliding door installations which not only meets the requirements as to facilitating installation procedures but which incorporates features of construction that renders the assembly simple and economical as well as sturdy.

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 of a door installation wherein a pair of doors are supported for sliding movement in overlapping relation along an overhead track by means of hanger units embodying features of this invention.

FIGS. 2, 3 and 4 are similar fragmentary enlarged views in side elevation illustrating the variable positions of the hanger operating means to establish selected adjusted positions of the door in relation to the overhead tracks.

FIG. 5 is an enlarged fragmentary vertical section taken along line 5—5 of FIG. 1.

FIG. 6 is a similar view taken along line 6—6 of FIG. 3.

FIG. 7 is a side elevational view of a hanger unit with portions of the hanger operating means removed to show intermeshing relation of parts of the hanger unit when the hanger operating means is in a position conforming to that shown in FIG. 3.

FIG. 8 is a side elevational view showing the upper portion of a door equipped with hanger units in accordance with this invention, and including a dotted line portion to illustrate an adjusted position.

The drawings illustrate a hanger unit embodying the features of this invention as applied to a door installation wherein each of a pair of doors 10 is supported from a track member 11 secured to a doorway frame 12 in overhead relation to the upper edge of the doors 10 to permit each door to move fore and aft of the track member 11 in overlapping relation to the other door.

As shown in FIG. 1 each door 10 is provided along its upper edge with a pair of supporting hangers designated generally by reference character H, which are spaced apart a suitable distance lengthwise of the track 12. Each hanger, in accordance with a preferred embodiment of this invention, includes a metal bracket having an upper arm 13 and a lower arm 14 offset from the upper arm by a medial portion 15. A roller 16 carried by an axle stud 17 projecting from the upper arm 13 has guided movement in the channel of the track 11. The lower arm 14 extends downwardly a distance sufficient to overlap an upright face portion of the door extending lengthwise of the track 11. The arm 14 is provided with a pair of vertically extending slots 18 and 19 spaced apart lengthwise of the upper edge of the door 10 for receiving binder

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screws 20 which function to releasably secure the door and the bracket associated therewith in fixed relation at any selected level below the track 11 within a range conforming to the vertical dimension of the slots 18 and 19. A third opening 21 provided in lower arm 14 of the bracket along a vertical line flanked by the slots 18 and 19 is given a sinuous configuration along one upwardly extending edge thereof to define a series of teeth 22. The dimension of the opening 21 is such as to receive within its confines the head 23 forming an integral axial extension of an operating lever 24 which is mounted on the door 10 by a screw 25 to provide a fixed axis about which the head 23 may be rocked in a path parallel to the path of sliding movement of the door 10. The head portion 23 has intermeshing engagement with the teeth 22 along the edge of the opening containing the head 23 by means of teeth 26 formed on the edge of the head 23. Accordingly, as the operating lever 24 is swung between positions to the left or right of a vertical line through the axis of the roller as depicted in FIGS. 2, 3 and 4, the teeth 26 on the head 23 of lever 24 acting in conjunction with the teeth 22 of the bracket arm 14 operate to raise or lower the door 10 while the binder screws 20 are loosened to free the door 10 for such movement, and when the door 10 is thereby adjusted to occupy a selected vertical position, the binder screws 20 are tightened to securely fasten the bracket against movement relative to the door. The screw 25, when tightened, is also effective to establish a binding engagement between the lever 24 and the area of the bracket arm 14 overlapped by said lever 24. Thus the screw 25 is effective to augment the binding action of screws 20 in fastening the bracket against movement relative to the door.

That portion of the lever 24 extending beyond the confines of the opening 21 is of such length as to provide an integral boss 27 at the outer end thereof, which has sliding bearing engagement along the surface of the door 10 beyond the area occupied by the arm 14 as an incident to rocking movement of the lever to raise or lower the door 10 relative to the track 11.

As viewed in FIG. 2, wherein the lever is swung to the right of a line dropped vertically from the axis of the roller 16, the bracket is moved to its downwardmost limit of adjustment with a consequent elevation of the door 10 to its upwardmost position.

FIG. 3 illustrates the door at a lowered position relative to the position shown in FIG. 2, as a consequence of disposing the lever in alignment with a perpendicular line through the axis of the roller 16.

FIG. 4 shows the lever swung to the left of a perpendicular line through the axis of the roller 16 which is effective to lower the door to its downwardmost position.

The lever 24 is preferably formed of a body of synthetic resinous material in order to provide relatively noiseless, wear resistant and corrosion-free conditions between interengaging portions of said lever 24 and the arm 14 of the bracket, without the necessity of applied lubrication to such parts.

It should be noted from FIG. 7 that the untoothed portion of head 23 of lever 24 presents a continuous circular radial edge diametrically opposite the toothed portion 26 of the head and that the edge of the slot 21 in the bracket arm 14 opposite the teeth 22 has continuous bearing engagement with such circular edge of the head 23 during rocking movement of the lever to raise or lower the door 10. Such rolling contact between the head 23 and the edge of the slot 21 opposite the teeth 22 acts to stabilize the bracket arm 14 along a fixed line of travel effective to maintain positive intermeshing relationship between the teeth 22 of the bracket arm and the teeth 26 of the head.

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The door installation shown in FIG. 8 illustrates a doorway having a floor surface which slants upwardly from left to right and also shows, in dotted lines, an adjusted position of the door so as to align the lower edge thereof along a line parallel to the floor surface by repositioning the operating lever 24 of the left hand hanger unit to its dotted line location to lower the left hand edge of the door 10.

What is claimed is:

A sliding door hanger assembly including a bracket, a track engaging roller attached to the upper end of said bracket, and means providing an adjustable connection between said bracket and a door in suspended relation thereto to accommodate adjustment of said door between raised and lowered positions relative to said roller, said means including an arm portion on said bracket for overlapping engagement with an upright face of a door extending lengthwise of the path of sliding movement of said door adjacent the upper edge thereof, said arm having an opening of elongated vertical dimension formed therein, said opening having a sinuous configuration along one upright edge thereof to define a succession of teeth and of straight line configuration along the opposite upright edge thereof, and a lever secured to the surface of the door facing said opening in the arm of the bracket for pivotal movement about a fixed axis in spaced parallel relation to the axis of said track engaging roller, said lever having an integral axial extension defining a head portion of such dimension as to be received within the confines of said opening in the arm of the bracket, said

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head portion having a part of its edge provided with a series of teeth along the arc of a circle concentric with the axis of pivotal movement of the lever, said teeth having intermeshing engagement with the teeth formed along the edge of the opening in said arm of the bracket and said head portion having another part of its edge continuously curved along the arc of the circle along which the teeth of said head portion are arranged for continuous rolling engagement with the edge of the opening in said arm of the bracket opposite the toothed edge of said opening during said pivotal movement of the lever whereby said pivotal movement of the lever is effective to move said bracket relative to said door, said lever having a radial extension projecting beyond the edges of the arm of the bracket, and a boss provided at the outer end of said radial extension of the lever having sliding bearing engagement with the surface of the door extending beyond the area of said surface occupied by the arm.

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