

[54] **ADJUSTABLE SLIDING SCREEN DOOR**
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[58] Field of Search160/90, 91, 372, 374; 49/55, 49/410, 411, 425, 453, 454

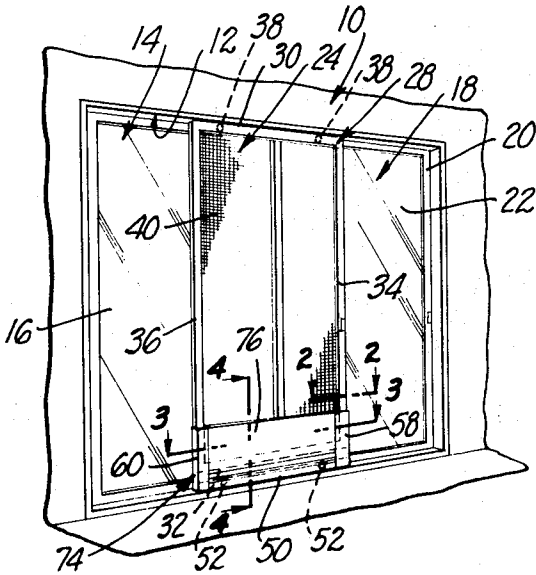
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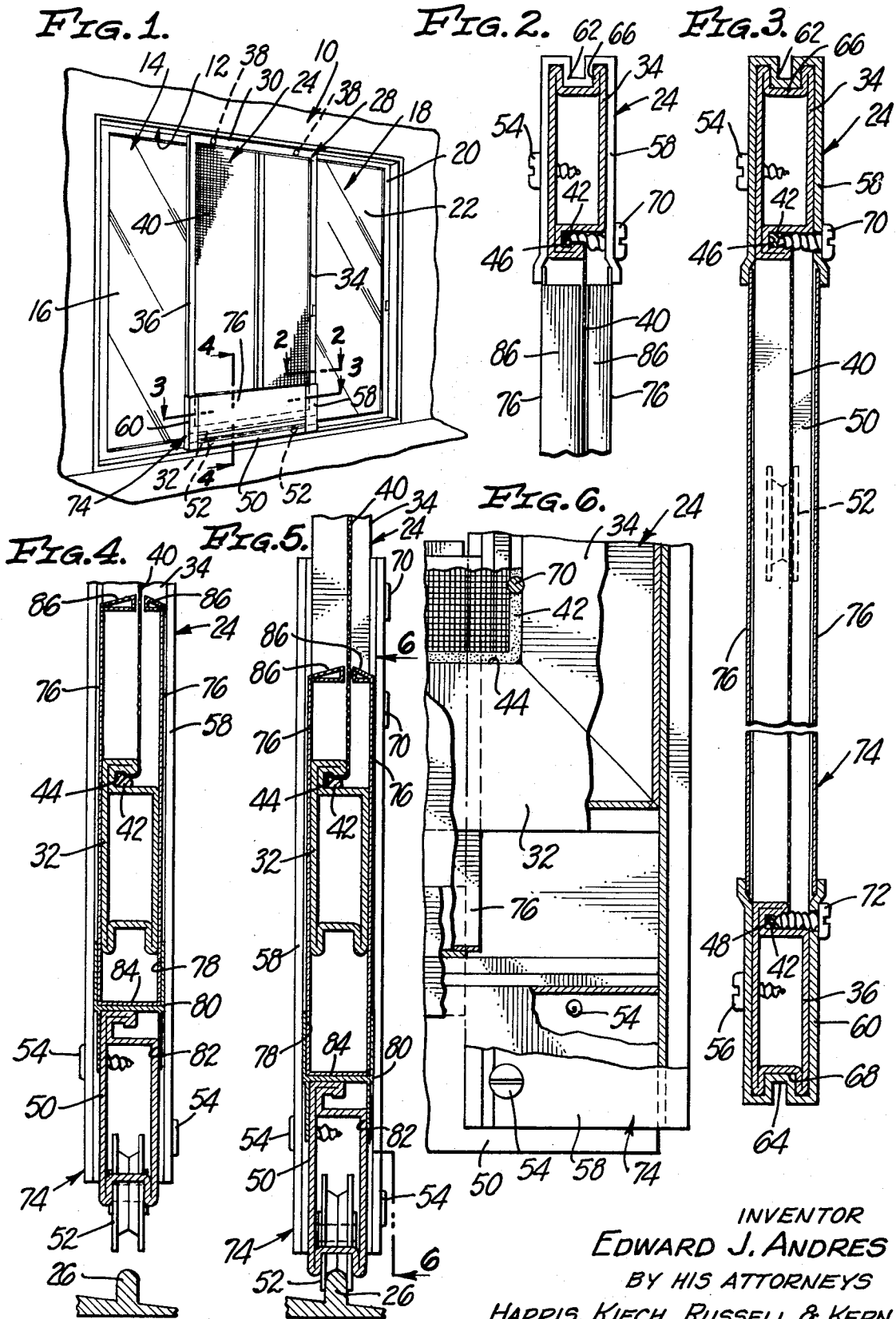
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[57] **ABSTRACT**
A sliding screen door adjustable as to height to accommodate upper and lower tracks having different vertical spacings. Channels telescoped over and slidable vertically on the lower ends of the stiles of the regular door frame are interconnected by an auxiliary lower rail carrying rollers which engage the lower track. The channels are fixed in their adjusted positions by screws threaded into the screen grooves of the stiles. Kick plates on opposite sides of the door cover the regular lower rail of the door frame.

[56] **References Cited**
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4 Claims, 6 Drawing Figures





ADJUSTABLE SLIDING SCREEN DOOR**BACKGROUND OF INVENTION**

The present invention relates to screen doors, or the like, and, more particularly, to a door which is adjustable in one dimension, e.g., which is adjustable as to height.

The invention is particularly applicable to, and, for convenience, will be considered in connection with, a sliding screen door which is adjustable as to height to accommodate different vertical spacings between the upper and lower tracks on which it runs. The vertical spacing between the upper and lower tracks for sliding screen doors is far from uniform and varies widely from one house or apartment to another. The availability of a sliding screen door which is adjustable as to height avoids the necessity for manufacturing and stocking doors of different heights.

OBJECTS AND SUMMARY OF INVENTION

The invention may be summarized as basically including, and a primary object is to provide an adjustable door, or the like, which basically includes: a rectangular frame comprising an upper rail and a main lower rail interconnected by horizontally spaced stiles; channels telescoped over and slidable vertically on the lower ends of the stiles; an auxiliary lower rail below the main lower rail and interconnecting the channels; and means for securing the channels to the stiles with the channels in the positions on the stiles required to provide the necessary door height.

An important advantage of the foregoing construction is that the entire height adjustment which may be required is achieved at the bottom of the door only, it being unnecessary to make height adjustments at both the top and bottom.

An important object of the invention is to make the slidable channels on the stiles of substantial length so that the combination of the channels and auxiliary lower rail with the regular rectangular frame constitutes a sturdy, rigid door. In other words the vertical channels telescoped over the stiles provide an adjustable door of maximum strength due to the substantial overlap of the channels and the stiles.

Another important object of the invention is to provide means for securing the channels in their adjusted positions, which comprises screws threaded into screen grooves in the stiles. These screen grooves normally receive the vertical edges of a rectangular screen with which the door is provided, the horizontal edges of the screen being received in screen grooves in the upper rail and the main lower rail.

Still another object is to provide an adjustable door, or the like, of the foregoing nature which includes kick plates on opposite sides of the door and covering the main lower rail.

Another object is to provide kick plates having upper edges in close proximity to the screen of the door to minimize the entry of dirt between the kick plates.

Yet another object of the invention is to provide an adjustable sliding screen door of the foregoing nature wherein the auxiliary lower rail carries rollers engageable with a lower sliding screen door track. The upper rail may also carry rollers engageable with a complementary upper sliding screen door track.

The foregoing objects, advantages, features and results of the present invention, together with various other objects, advantages, features and results thereof which will be evident to those skilled in the adjustable door art in the light of this disclosure, may be achieved with the exemplary embodiment of the invention described in detail hereinafter and illustrated in the accompanying drawing.

DESCRIPTION OF DRAWING

In the drawing:

FIG. 1 is a perspective view illustrating a sliding door installation which includes an adjustable-height sliding screen door embodying the invention;

FIG. 2 is an enlarged, fragmentary horizontal sectional view taken as indicated by the arrowed line 2—2 of FIG. 1;

FIG. 3 is an enlarged, horizontal sectional view taken as indicated by the arrowed line 3—3 of FIG. 1;

FIG. 4 is an enlarged, fragmentary vertical sectional view taken as indicated by the arrowed line 4—4 of FIG. 1, and illustrating the door before height adjustment;

FIG. 5 is a view similar to FIG. 4, but illustrating the door after height adjustment; and

FIG. 6 is a fragmentary sectional view taken as indicated by the irregular arrowed line 6—6 of FIG. 5.

DESCRIPTION OF EXEMPLARY EMBODIMENT OF INVENTION

Referring initially to FIG. 1 of the drawing, the numeral 10 designates an exterior wall having an opening 12 therein which extends upwardly from floor level to a point approaching ceiling level. Part of the opening 12 is occupied by a stationary panel structure 14 which includes a glass panel 16. The remainder of the opening 12 is adapted to be closed by a sliding glass door 18 comprising a frame 20 containing a glass panel 22.

The installation shown also includes an adjustable-height sliding screen door 24 of the invention movable along an upper track, not shown, and a lower track 26, FIGS. 4 and 5. The screen door 24 is, of course, movable between an open position and a closed position wherein it closes the portion of the opening 12 adapted to be closed by the sliding glass door 18.

In its broader aspects, the present invention may be embodied in either the sliding glass door 18, or the sliding screen door 24, or both. For convenience, however, the invention is considered hereinafter as embodied in the sliding screen door 24 only.

The adjustable-height sliding screen door 24 includes a rectangular frame 28 comprising an upper rail 30 and a main lower rail 32 interconnected by horizontally spaced stiles 34 and 36. The upper rail 30 may carry rollers 38 engageable with the upper track, the latter being similar, for example, to the lower track 26.

The screen door 24 includes a rectangular screen or screen panel 40 the respective edges of which are tucked into screen grooves in the rails 30 and 32 and the stiles 34 and 36 and held therein by a resilient strip 42, FIGS. 2 to 6. The screen groove in the main lower rail 32 is visible in FIGS. 4 to 6 and designated by the numeral 44. The screen grooves in the stiles 34 and 36 are visible in FIG. 3 and are designated by the numerals 46 and 48, respectively. An identical screen groove, not shown, is provided in the upper rail 30.

To permit adjusting the height of the screen door 24 to accommodate a particular spacing between the upper track and the lower track 26, the regular frame 28 carries a vertically adjustable auxiliary lower rail 50 below the main lower rail 32. This auxiliary lower rail 50 carries rollers 52 engageable with the lower track 26, as shown in FIG. 5.

The ends of the auxiliary lower track 50 are secured, as by screws 54 and 56, to vertical channels 58 and 60 telescoped over and slidable vertically of the lower ends of the respective stiles 34 and 36. As will be apparent from FIGS. 1 and 5, there is considerable overlap between the channels 58 and 60 and the stiles 34 and 36 to provide rigid telescopic connections therebetween. Also, the edges of the channels 58 and 60 respectively include ribs 62 and 64, FIG. 3, complementary to and slidable vertically in grooves 66 and 68 in the respective stiles 34 and 36. Such ribs and grooves further rigidify the telescopic connections between the channels 58 and 60 and the respective stiles 34 and 36, which is an important feature.

The channels 58 and 60 are secured in their desired vertically adjusted positions by screws 70 and 72 respectively extending through the channels 58 and 60 and threaded into the screen grooves 46 and 48 in the respective stiles 34 and 36. Thus, the screen grooves 46 and 48 in the stiles 34 and 36 are used as screw slots or screw troughs to avoid the necessity for drilling any holes in the stiles 34 and 36 after the adjusted vertical positions of the channels 58 and 60 have been achieved, which is an important feature of the invention.

The auxiliary lower rail 50 and the channels 58 and 60 constitute a vertically adjustable assembly 74 which also includes kick plates 76 on opposite sides of the door, the kick plates cooperating with the auxiliary lower rail and the channels to conceal the main lower rail 32, the lower ends of the stiles 34 and 36 and the lower portion of the screen 40.

The ends of the kick plates 76 fit into the open edges of the channels 58 and 60, which are flared slightly to receive the kick plates, as will be clear from FIG. 3. The kick plates 76 are secured to the auxiliary lower rail 50 by disposing the lower edges of the kick plates in the upper channel 78 of a H-shaped member 80, the lower channel 82 of this member receiving the upper edge of the auxiliary lower rail 50. In the particular construction illustrated, the H-member 80 is secured to the kick plates 76 and to the auxiliary lower rail 50 by cementing, or the like. It will be noted that the lower edges of the kick plates 76 are interconnected within the channel 78, as indicated at 84, to maintain the proper spacing between the kick plates.

The upper edges 86 of the kick plates 76 slope upwardly and inwardly toward each other and into close proximity to the screen 40, as shown in FIGS. 2, 4 and 5. This construction minimizes the entry of dirt into the space between the kick plates 76.

OPERATION OF INVENTION

As will be apparent, adjusting the height of the screen door 24 to a given spacing between the upper track and the lower track 26 is a very simple matter. All that is necessary is to adjust the position of the vertically movable assembly 74 relative to the frame 28 until the upper and lower edges of the screen door properly engage the upper and lower tracks, as will be clear from a comparison of FIGS. 4 and 5. Then, the vertically adjustable assembly 74 is locked in place very simply by the screws 70 and 72 threaded into the screen grooves 46 and 48. The entire operation takes but a few minutes.

Although an exemplary embodiment of the invention has been disclosed herein for purposes of illustration, it will be understood that various changes, modifications and substitutions may be incorporated in such embodiment without departing from the spirit of the invention as defined by the claims which follow.

I claim:

1. In an adjustable sliding door, or the like, the combination of:

- a. a rectangular frame comprising an upper rail and a main lower rail interconnected by horizontally spaced stiles;
- b. a rectangular panel having edges respectively connected to said upper and main lower rails and said stiles;
- c. channels telescoped over and slidable vertically on the lower ends of said stiles;
- d. an auxiliary lower rail below said main lower rail and interconnecting said channels;
- e. means for securing said channels to said stiles; and
- f. rollers carried by said auxiliary lower rail.

2. An adjustable door, or the like, according to claim 1 wherein said panel is a screen, wherein said upper and main lower rails and said stiles are provided with screen grooves respectively receiving the edges of said screen, and wherein said securing means comprises screws threaded into said screen grooves in said stiles.

3. An adjustable door, or the like, as set forth in claim 1 including kick plates on opposite sides of the door and covering said main lower rail.

4. An adjustable door, or the like, as defined in claim 3 wherein said kick plates are connected to said auxiliary lower rail.

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