

United States Patent

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[54] CURTAIN SUSPENSION RAILS

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[58] **Field of Search**.....16/87.2, 87.4, 93 DS, 94 D.

16/95 D, 96 D; 211/94, 94.5; 160/345, 346,
347

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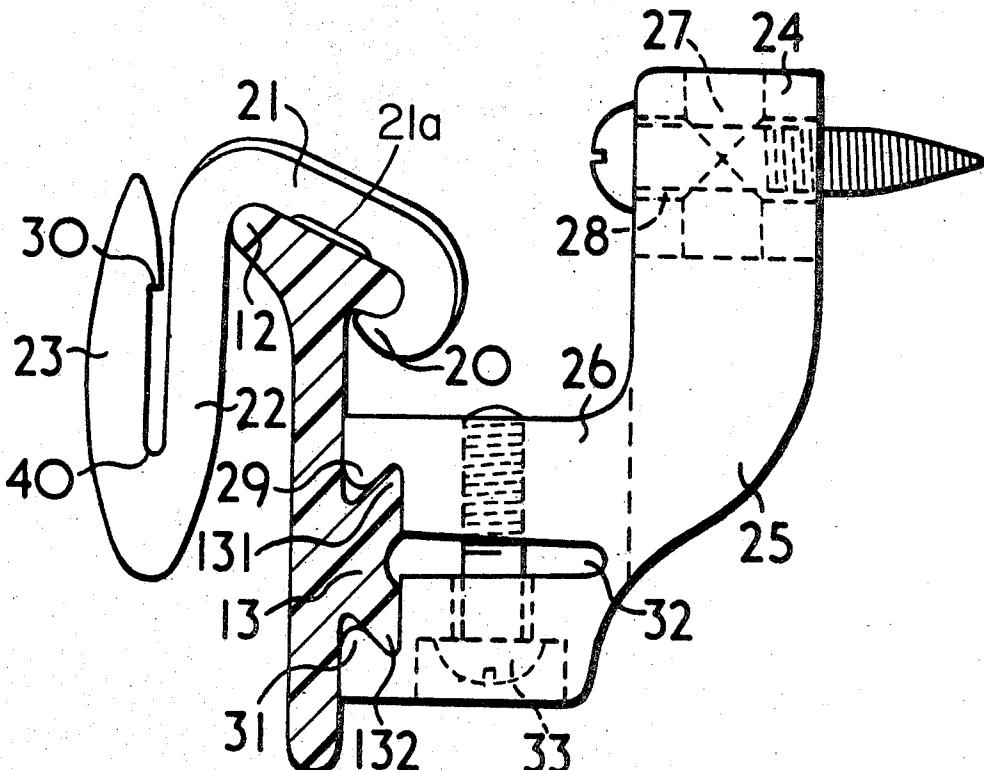
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ABSTRACT

A curtain suspension arrangement comprises a rail, support means for said rail, a plurality of hook-gliders which are combined hooks for engagement with a curtain and gliders for engagement with a rail, said rail being relatively deep with a smooth front surface and comprising a glider-securing means along the upper edge portion thereof, each hook-glider comprising a rail-engagement portion adapted to be supported solely by and slide smoothly along said glider-securing means, the hook portion of each hook-glider lying above the lower edge of the rail, whereby a curtain can be supported at a high level relative to the rail.

9 Claims, 4 Drawing Figures



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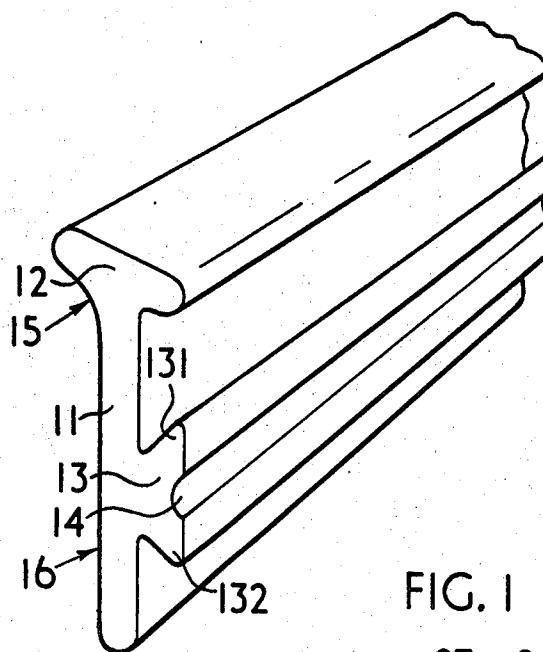


FIG. I

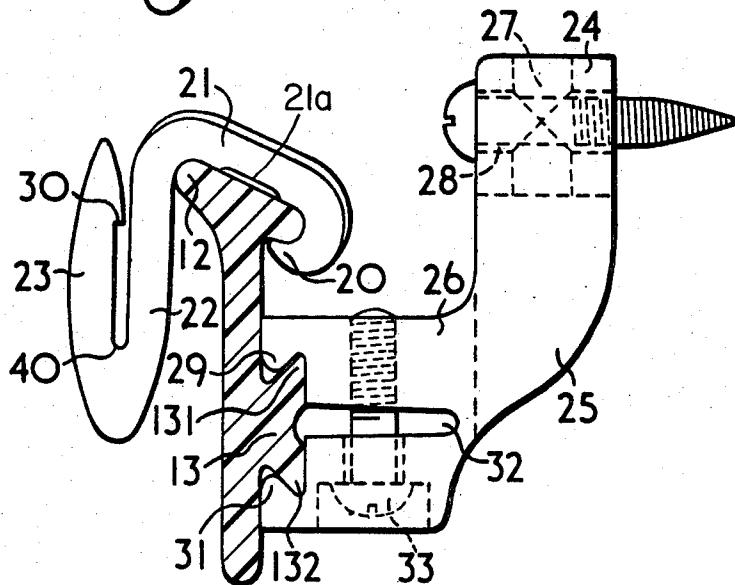


FIG. 2

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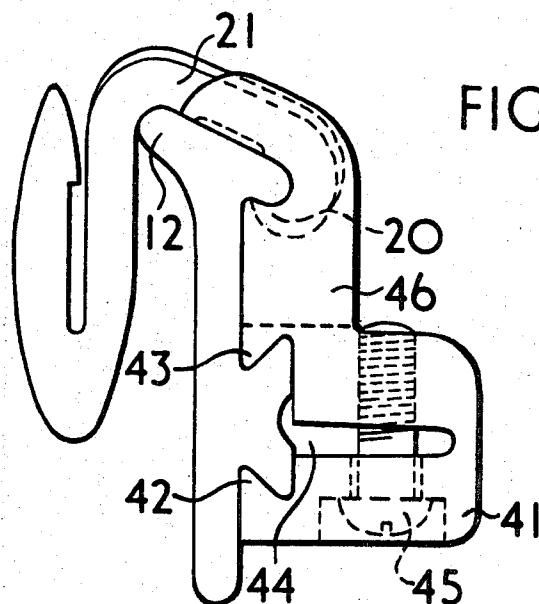


FIG. 3

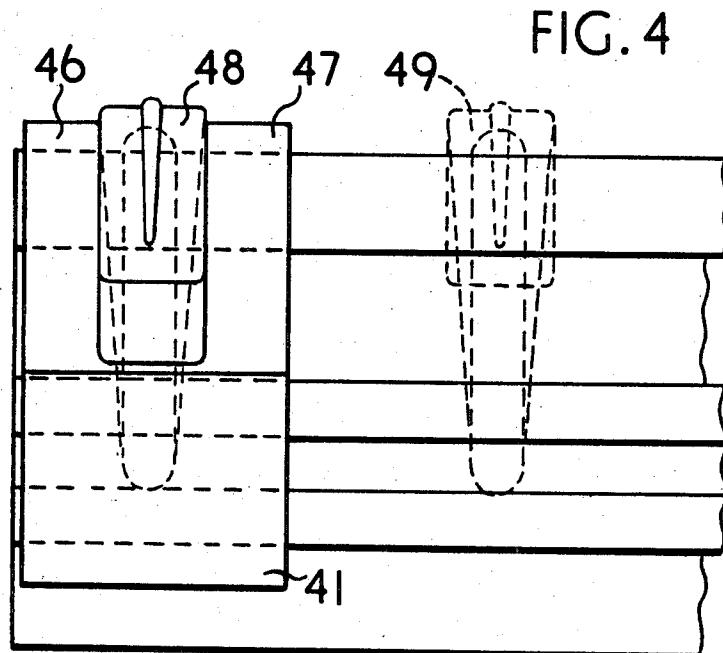


FIG. 4

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CURTAIN SUSPENSION RAILS

The invention relates to curtain suspension arrangements and to rails and combined hook-gliders forming parts of curtain suspension arrangements.

Some known forms of curtain suspension arrangement incorporate a rail having a smooth front surface which may be flat or decorated but is devoid of prominent functional projections. Such suspension rails are intended to be suitable for use without helmets as they are generally attractive in appearance and need not be hidden from view. With such a rail, it is usual to suspend a glider from the rail either by engaging the glider in a groove in the rear or lower surface of the rail or alternatively by engaging the glider over both the upper and lower edges of the rail. In this first case, it is not practicable to utilize a combined hook for engagement in the curtain and glider for engagement with and sliding along the rail. This is because there would be substantial difficulties in engaging such a combined device, referred to herein as a hook-glider, in a groove on the back or under surface of the rail after the hook-glider has been secured to a curtain and it is difficult to secure the curtain to the hook-glider after the hook-glider has been engaged with the rails.

When a glider is of the kind which engages over both the upper and lower edges of the rail it has to be comparatively large, cumbersome and expensive in order to span the depth from the top to the bottom of the rail. In both situations described above it is not practicable for the hook on which the curtain or conventional curtain heading tape is supported to be arranged substantially above the level of the lower edge of the rail. As a result of this a substantial depth of curtain is required above the hook if the curtain is to occupy a position sufficiently high to hide the rail when the curtains are closed. In order to achieve this result it is normally necessary to provide deep heading tapes and/or hooks which have large upwardly extending portions for supporting the upper edge of the curtain.

According to one aspect of the invention there is provided a curtain suspension arrangement incorporating a rail and a plurality of hook-gliders, the rail having a glider securing means forming the upper edge portion thereof, and each hook-glider incorporating a rail engagement portion adapted to be supported solely by and slide smoothly along said glider securing means, and a hook portion adapted to support the upper edge portion of the curtain. Preferably the rail incorporates a smooth front surface and a mounting arrangement on the rear surface of the rail to enable the rail to be supported on a series of brackets.

According to another aspect of the invention there is provided a hook-glider incorporating a rail engagement portion adapted to be supported solely by and slide smoothly along a glider securing means forming the top part of a curtain suspension rail and a hook portion adapted to support the upper edge portion of a curtain.

A hook-glider in accordance with the invention may be of small dimensions and at the same time may provide a hook portion which is at a level substantially above the lower edge of a rail on which the hook-glider is to run.

According to another aspect of the invention there is provided a curtain suspension rail having a glider securing means forming the upper edge portion thereof, a

smooth front surface and a mounting arrangement on the rear surface thereof.

An advantage is that it is a simple operation to mount a curtain on a rail by first of all engaging a series of hook-gliders in the upper region of the curtain, for example on a conventional heading tape, and then engaging the rail engagement portion of the hook-glider over the top edge of the rail. The weight of the curtain will in many cases be sufficient to clip the hook-glider into its desired location on the rail.

An embodiment of the invention will now be described by way of example only with reference to the accompanying drawings in which:

FIG. 1 is a perspective view of a portion of curtain rail;

FIG. 2 is a section through the curtain rail of FIG. 1, also showing a hook-glider supported on the rail and a mounting bracket for supporting the rail;

FIG. 3 is an end view of a rail also showing an end-stop; and

FIG. 4 is a view from the rear of FIG. 3.

The rail shown is an elongated member which is formed as an extrusion of a plastics material which is such that the rail is capable of being bent as will be described hereinafter. The rail comprises a generally upright portion 11, a glider support arrangement constituted by an inclined flange 12 and a mounting arrangement constituted by a dovetail member 13 with a recess 14. The flange 12 is inclined downwardly and rearwardly (FIG. 1 shows the rear side of the rail) so that the small forwardly projecting part of the rail is not visually prominent when the rail is viewed from the front. This smooth curve at 15 makes this forwardly projecting part less prominent. The mounting arrangement 13, 14 is on the rear face of the generally upright portion 11 so that the overall effect of the rail when viewed from the front is generally flat or smooth but with a slight inclined forward projection at the top edge. The front surface 16 may be left plain as shown or alternatively may be decorated in any desired manner by color or relief.

The rearwardly projecting dovetail member 13 may be considered as two rearwardly extending divergently inclined ribs 131 and 132 and in use this member is engaged with a mounting bracket as shown in FIG. 2.

The mounting bracket incorporates a rectangular mounting block 24 which is joined by two vertical arms 25 to a rail engaging portion 26. The mounting block 24 incorporates a vertical hole 27 which may be used for securing the mounting bracket below a horizontal surface such as a ceiling by means of a screw and a horizontal hole 28 which may alternatively be used for mounting the bracket on a vertical surface such as a wall by means of a screw. The fact that the mounting block 24 is well above the rail engaging portion 26 makes it a simple matter to tighten a screw in the hole 28. Similarly the space between the two arms 25 permits access to a screw in the hole 27.

The rail engaging portion 26 incorporates a pair of jaws 29 and 31 and the space between these jaws forms a dovetail recess adapted to receive the dovetail member 13 of the rail. Due to the presence of a slot 32 extending rearwardly through most of the rail engaging portion 26 from the dovetail recess and due to the flexibility of the plastics material from which the bracket is

formed there is some flexibility between the jaws 29 and 31 and these may be moved apart or brought together over a certain range of movement required for a purpose to be described. A screw 33 engages in a hole extending across the slot 32 and serves as a clamping means for drawing the two jaws 29 and 31 together to cause them to grip the dovetail member 13 of the rail.

In use a series of brackets of the kind shown in the drawing are secured in position along the desired line of a curtain rail. At this stage the screws 33 are loose in their holes so that the jaws 29 and 31 are spaced further apart than is shown. The rail is then inserted into the dovetail recesses of the brackets by first inserting the upper portion 131 of the dovetail member 13 in an upward direction and then twisting the rail to insert the lower portion 132 of the dovetail member 13. The insertion of the lower dovetail portion 132 is facilitated by a rounded corner of the lower jaw 31. Alternatively a similar action may be employed starting with the insertion of the lower portion of the dovetail. The spacing between the jaws 29 and 31 with the screw 33 loose should be such that little or no force is required to insert the rail but that the rail will remain in position without any tightening of the screw. Once the rail is in position the screws 33 are tightened in order to clamp the rail in position but during the clamping operation it is not necessary to hold the rail in position.

A suitable hook-glider for use with the rail of FIG. 1 is shown in position on the rail in FIG. 2. This hook-glider incorporates a rail engagement portion constituted by an open loop 21 which engages over the flange 12 in order to secure the hook-glider on the rail. The underside of the open loop 21 has a centrally located recess 21a to thus limit the frictional engagement between the loop and the top surface of flange 12. The hook-glider is made of a plastics material which is sufficiently resilient to enable the hook-glider to be clipped into engagement with the flange 12 of the rail from above with an end portion 20 of the hook-glider engaged under the rear of the flange 12. The loop 21 should of course be sufficiently open to permit this engagement to take place. The hook-glider also incorporates a downwardly depending portion 22 which when the glider is on the rail extends down in front of the rail. This downwardly depending portion 22 terminates in an upwardly directed hook portion 23 which is barbed at 30.

In use, the barbed hook portion 23, 30 is engaged in a conventional curtain heading tape secured to the upper edge of a curtain. In this way a series of hook-gliders as shown in FIG. 2 spaced out along the upper edge of a curtain may be used to support the curtain from the rail shown in FIG. 1. Nylon is a particularly suitable material for the hook-glider because it runs particularly smoothly on a rail of plastics material and enables curtains to be opened and closed smoothly and quietly with a very light effort.

The hook-glider is such that the hook portion is wholly above the level of the lower edge of the rail. At the same time the root 40 of the hook portion which supports the main load of the curtains is below the level at which the hook-glider is supported on the rail so that the hook-glider will run smoothly on the rail without tending to tilt and jam. A reason why it is desirable to arrange for the hook portion to be at a high level is that

this simplifies the otherwise cumbersome task of supporting the curtain at a sufficiently high level to enable it to hide from view the rail and hook-gliders. With an arrangement as shown in FIG. 2 it is possible to hide the whole of the rail and the hook-gliders when the curtains are closed by means of a conventional narrow heading tape on the top edge of the curtains engaged on the hook portions 23. When the curtains are opened, in the region between the curtains the only part that is visible is the front surface of the rail.

The rail shown in FIG. 1 is constructed of a plastics material which is capable of being bent without breaking. If a gradual curve in the line of a curtain is required, this may be achieved by arrangement of a series of mounting brackets along the desired line of the rail and simply securing the rail to these brackets so that the rail takes on the desired curved form. Alternatively, if a sharp angle is required the rail should be firmly bent at the desired location of a bend and the material of the rail should be such that it does not spring back to the straight condition. The cross section of the rail tends to distort to a substantial extent at the locality of a sharp bend, for example, the dovetail portions 13 separated by the recess 14 tend to become flattened against the upright portion 11 of the rail. There is also a tendency for the inclined flange 12 to become more nearly upright. However, the flange 12 does not become distorted in itself to such an extent that it is impossible for a glider as shown in FIG. 2 to run smoothly around the bend. It is envisaged that with a hook-glider engaged with both the top and bottom edges of the rail, as has been proposed previously, the distortion at the sharp bend would prevent a hook-glider running round the bend.

Although the invention has been described in detail with reference to a hook-glider for use with a glider support arrangement constituted by an inclined flange 12 inclined downwardly and rearwardly, the glider support arrangement and hook-glider may take various other forms, for example, the flange may be inclined downwardly and forwardly or it may be horizontal.

Also instead of a flange as such there may be provided a slight increase in thickness of the upright portion 11 along its upper edge or the same effect may be achieved by a longitudinal horizontal groove near the upper edge of an otherwise uniform upright portion 11. In any such case the rail engagement portion of the hook-glider should be adapted to the configuration of the upper part of the rail so that it may be clipped into position and then be free to run along the rail but hold against falling off the rail.

In order to prevent the hook-gliders from running off the end of the rail it is necessary to provide an end-stop at each end of the rail. It is a conventional practice for an end-stop also to serve as a location point for the end hook of the curtain in order to positively locate the outer end of the curtain against being drawn towards the center of the rail. When hook-gliders are used in a curtain suspension arrangement in place of independent hooks and gliders, it is usual for the end-stop to incorporate a fixed end hook for a curtain. Thus, when the curtain is being removed from the rail it is normally necessary either to remove the end-stop from the rail or to remove the curtain from the hook incorporated in the end-stop. Either of these procedures is incon-

venient and undesirable. This problem is overcome with the use of an end-stop as shown in FIGS. 3 and 4. Such an end-stop is provided with a slot whereby a hook-glider can be inserted in the slot and clipped onto the rail in the normal position of the hook-glider relative to the rail.

FIGS. 3 and 4 show an end-stop 41 provided with a pair of jaws 42 and 43 with a slot 44 therebetween and a screw 45 to adjust the relative positions of the two jaws. This part of the end-stop corresponds to the corresponding jaws 29 and 31 and the associated clamping means of a mounting bracket as shown in FIG. 2.

Two separate projections 46 and 47 (both seen in FIG. 4) extend up from the main body of the end-stop. The upward projections 46 and 47 are contoured so that they are a close fit on the rear surface of the curtain rail and also on the upper surface of the flange 12 of the rail. The spacing between the two projections 46 and 47 is such that a slot is formed whereby a hook-glider can be inserted into the slot and clipped onto the rail. Such a hook-glider then takes up the normal position of a hook-glider relative to the rail. FIG. 4 shows such a hook-glider 48 in position in the slot. A further series of hook-gliders represented by one hook-glider 49 shown in chain dotted outline are prevented from sliding off the end of the rail by virtue of the end-stop.

By virtue of this arrangement it is possible to remove a curtain from the rail without disengaging an end hook (or hook-glider in this case) from the curtain and also without removing the end-stop from the rail. This result could be achieved by means of a conventional end-stop and a conventional hook engaging therein, but this would entail a requirement for two separate and different components, namely the end-stop and the hook, whereas with the present arrangement it is possible to use a standard hook-glider in conjunction with the end-stop.

We claim:

1. A curtain suspension arrangement comprising: a rail, support means for said rail, a plurality of hook-gliders, glider securing means forming the upper edge portion of the rail and constituted by a transverse downwardly and rearwardly inclined flange having both rearwardly and forwardly extending portions extending outwardly from the rail, said rearwardly and forwardly extending portions defining respectively first and second glider engagement surfaces, each hook-glider comprising a rail engagement portion adapted to be supported solely by and to slide smoothly along said glider securing means, the rail engagement portion comprising a rear portion defining a first rail engagement surface operatively engageable with and slideable with respect to said first glider engagement surface, the

5 rail engagement portion further comprising a forward portion defining a second rail engagement surface operatively engageable with and slideable with respect to said second glider engagement surface, and a 10 downwardly extending portion depending from said forward portion being spaced from the front face of said rail a distance no less than the distance said forwardly extending flange portion extends outwardly from said rail, thereby assuring that the hook portion of the 15 hook-glider remains out of contact with the face of said rail, said first and second rail engagement surfaces in engagement with said first and second glider engagement surfaces forming the sole interengagement between said hook-gliders and said rail.

2. The structure of claim 1 further characterized by an inner portion between said forward and rearward portions, said inner portion having a centrally located recess therein to limit the frictional engagement between the top of said flange and the inner portion of the hook-glider.

3. A curtain suspension arrangement according to claim 1, said rail having a smooth front surface.

4. A curtain suspension arrangement according to claim 1, the hook portion of each hook-glider lying above the lower edge of the rail when the hook-glider is secured to the rail.

5. A curtain suspension arrangement according to claim 1, said mounting means comprising a mounting arrangement on the rear surface of the rail and a series of mounting brackets engaged therewith.

6. A curtain suspension arrangement according to claim 1, said mounting arrangement comprising a longitudinally extending, rearwardly projecting dovetail member.

7. A curtain suspension arrangement according to claim 1 said mounting brackets being one-piece brackets of plastics material each having dovetail recess formed between two jaws adapted to receive the dovetail member of the rail, the relative positions of the two jaws being adjustable by a clamping means.

8. A curtain suspension arrangement according to claim 1 further comprising an end-stop secured at or near an end of the rail to prevent hook-gliders running off the rail, said end-stop having a recess adapted to receive one of the said hook-gliders to hold it against movement along the rail.

9. A curtain suspension arrangement according to claim 1 the hook-glider being formed of resilient material, said glider securing means and said rail engagement portion of each hook-glider being such that a hook-glider can be clipped by its rail engagement portion onto the glider securing means from above and then becomes held on said glider securing means.

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