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VENETIAN BLIND TILT ROD SUPPORT

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1 Claim. (Cl. 160—177)

The present invention relates to Venetian blinds, and more particularly to a bracket that can be mounted in a metal Venetian blind head rail of the type comprising a channel section with inwardly turned edge rolls, for rotatably supporting the tilt rod from which the slats and tapes are supported. The primary object of the invention is to provide a bracket that can be quickly and easily assembled in the head rail without special tools or fixtures, and that can easily be removed therefrom, if necessary.

Another object of the invention is to provide a bracket which is firmly attached to the head rail, and cannot be accidentally dislodged therefrom. This feature is important because of the fact that blinds are customarily assembled in a shop and then shipped to their destination for installation. Being fabricated of relatively light gage material, there is some flexibility in the unmounted Venetian blind assembly, which allows the head rail to twist or otherwise flex under the stresses of handling. Brackets or other parts that are sprung into place in the head rail, and which rely upon spring tension of the parts to hold them in place, tend to become dislodged. As a consequence, the blind may become partially disassembled, necessitating reassembly at the point of installation.

A further object of the invention is to provide a tilt rod supporting bracket that serves the additional function of locating the tape rolls on the tilt rod, and that also supports the rollers over which the Venetian blind lift cord is trained. This eliminates the need for separate tape roll locating devices or roller supporting brackets, and further simplifies the operation of assembling the hardware in the head rail.

Still another object of the invention is to provide a tilt rod supporting bracket which is simple and inexpensive to manufacture, and at the same time, extremely rugged in construction.

The foregoing objects are achieved by providing a bracket having tongues projecting upwardly from the top edge thereof, which are inserted up into the inwardly turned edge roll at the back side of the channel-shaped head rail. The bracket is then pushed back flat against the back side of the channel head rail, which causes the bottom of the bracket to bear against the bottom of the head rail. The height of the bracket from its bottom surface to the top edge of the said tongues is such that the tongues are sprung slightly when the bracket is forced all the way back into place, causing the tongues to bite into the inside surface of the edge roll. A rearwardly and downwardly extending tab on the bottom of the bracket is positioned to enter the cord hole in the bottom of the head rail when the bracket is pushed back into place. This tab is bent downwardly around the front edge of the cord hole, and up flat against the underneath side of the head rail bottom, thereby locking the bracket down into the right angle corner formed by the junction of the bottom and back walls of the head rail.

The bracket is also provided with a pair of laterally spaced side walls which project in toward the center of

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the head rail and confine the tape roll endwise between them. Each of these side walls is provided with an upwardly facing, half round bearing seat, in which the tilt rod is rotatably supported. An ear on each side of the side walls extends out over the bearing seat to confine the tilt rod therein from above, and when the tilt rod is placed in the bearing seat or removed therefrom, the ear is bent over to one side and out of the way.

A pair of spaced flanges is bent up from the bottom of the bracket, and two cord rollers are disposed side by side between them and rotatably supported therefrom. A hole in the bottom of the bracket between the two rollers registers with the cord hole in the bottom of the head rail, and the Venetian blind lift cord passing over the roller turns down through the said holes and passes downwardly through cord holes in the slats to the bottom rail at the lower edge of the blind.

Other objects and advantages of the present invention will become apparent to those skilled in the art upon consideration of the following detailed description of the preferred embodiment thereof, reference being had to the accompanying drawings, wherein:

Figure 1 is a partially cut away, fragmentary perspective view of one end of a Venetian blind head rail, showing a tilt rod supporting bracket embodying the principles of my invention;

Figure 2 is a transverse sectional view through the head rail, showing the bracket as first inserted into the head rail;

Figure 3 is a view similar to Figure 2, showing the bracket pushed back all the way into place;

Figure 4 is a perspective view of the bracket alone; and

Figure 5 is a bottom view of the bracket.

In the drawings, the reference numeral 10 designates a metal Venetian blind head rail of the type comprising a U-shaped channel section forming a front wall 11, rear wall 12, and bottom 13. The edges of the channel section are rolled inwardly to form edge rolls 14 and 15. The ends of the head rail are received within mounting brackets 16, which are adapted to be screwed to a wall or window frame to support the blind therefrom.

Suspended from the head rail 10 on two or more ladder tapes 18 (only one of which is seen in Fig. 1) are slats 20, each of which has cord holes 21 provided therein between the side tapes of the ladder 18, through which the downwardly extending lift cords 22 pass. The ends of the cords 22 are attached to the usual bottom rail (not shown) fixed to the lower ends of the ladders 18. The side tapes of the ladders 18 pass upwardly through slots 24 in the bottom of the head rail and are attached to tape rolls 26 mounted on a tilt rod 28. The tilt rod 28 is preferably square in cross section, and is rotatably supported by brackets 30, which are mounted on the head rail in transverse alignment with the tape slots 24.

The bracket 30 is best shown in Figures 4 and 5, and is formed of sheet metal bent to provide a back wall 32, with sides 34 and bottom 36 standing out at right angles thereto. Two laterally spaced tongues 38 extend upwardly and inwardly from the top edge of the back wall 32, and are adapted to be inserted up into the back edge roll 15, as shown in Figures 2 and 3. The height of the bracket from the underside of the bottom 36 to the top edge of the tongues 38 is slightly greater than the distance from the bottom 13 of the head rail to the inside surface of the edge roll 15, hence the tongues are caused to bite into the inside surface of the edge roll when the bracket is pushed all the way back into place, as in Figure 3. The slight angle at which the tongues 38 are bent out from the back wall 32 allows the tongues to bend slightly, which places the bracket under spring tension when assembled in the head rail.

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Formed in the top edges of the side walls 34 are half-round bearing seats 40, in which the tilt rod 28 is cradled. A flange 41 is bent inwardly from the edge of each of the half-round seats 40 to provide increased bearing area for the tilt rod 28.

Extending out over the bearing seat 40 from the top edge of each of the side walls 34 is an ear 42, which serves to confine the tilt rod 28 in the bearing seats. The ear 42 is connected to the side wall 34 by a narrow neck 43, which can be bent to swing the ear 42 over to one side and out of the way, as shown in phantom lines in Figure 4, to permit the tilt rod 28 to be placed down into the bearing seat 40 or lifted out therefrom.

Below the bearing seats 40, the sides 34 are cut out at 44 to provide an opening through which the cords 22 pass in traveling lengthwise along the head rail. The bottom and rear edges of the cut-out 44 are rolled inwardly to provide a smooth surface over which the cords slide.

The bottom 36 of the bracket has a slot 46 punched out of it, which registers with the rear slot 24 in the head rail. A pair of spaced parallel flanges 48 are bent up from the bottom of the bracket on the outside of the slot 46, and disposed side-by-side between the flanges are two spool-shaped rollers 50. The rollers are rotatably supported on pins 52, the ends of which are secured in holes in the flanges 48.

Struck out from the bracket bottom 36 between the flanges 48 is a tab 54, which initially extends downwardly and rearwardly at an angle of about 45° to the bottom. A hole 56 is formed in the root portion of the tab (see Figure 5), leaving two narrow strips 58 connecting the tab to the bracket. The hole 56 reduces the stiffness of the tab, and the strips 58 are yieldable to permit the tab to be bent back with the fingers when installing the bracket.

The tab 54 is located on the bracket in a position to register with the cord hole 60 in the bottom of the head rail midway between the tape slots 24, and when the bracket is inserted down into the head rail, the rear end of the tab projects down into the hole. When the bracket is pressed all the way back into the bottom rear corner of the head rail, the base, or bend line of the tab registers with the outer edge of the hole 60. The tab is then bent back under the edge of the hole, and up flat against the under side of the head rail bottom 13, as shown in Figure 3. In this condition, the bracket is securely held back in the corner formed by the junction of the bottom 13 and rear wall 12 of the head rail; the tab 54 acting to hold the bracket back against the rear wall 12, and the tongues 38 serving to hold it down against the bottom 13.

An opening 62 is left in the bottom 36 of the bracket by the punch press operation of striking out the tab 54, and this opening registers with the hole 60 to provide passageway for the lift cord 22.

The bracket is assembled in the head rail by tilting it

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so that the tongues 38 can be inserted up into the rear edge roll 15, with the tab 54 projecting down into the cord hole 60, as in Fig. 2. The bracket is then pressed back against the rear wall 12 of the head rail, and the tab 54 is folded under the left-hand edge of the opening 60, as shown in Fig. 3. The ears 42 are then bent back to the position shown in phantom lines in Fig. 4, and the tilt rod 28 with tape roll 26 assembled thereon, is dropped into the bearings 40. The ears 42 are then bent back to their original position, overlying the tilt rod and serving to confine the latter to the bearings 40. The lift cords 22 are threaded up through the openings 60, 62, and are trained over the rollers 50 to reach lengthwise of the head rail to the cord lock (not shown) at one end thereof. The two rollers 50 permit the bracket to be used with the cord lock at either end of the head rail.

While I have shown and described in considerable detail what I believe to be the preferred form of my invention, it will be understood that such details are merely illustrative, and that various changes may be made in the shape and arrangement of the several parts without departing from the broad scope of the invention, as defined in the appended claim.

I claim:

A tilt rod supporting bracket for use with a channel section Venetian blind head rail having inwardly turned edge rolls along both sides thereof and openings in the bottom thereof, said bracket being seated in the corner formed by the junction of one side and the bottom of said head rail and including a back wall and a bottom, a pair of laterally spaced tongues projecting upwardly from the top edge of said back wall into the edge roll of said one side, said tongues being bent forwardly at a slight angle and being of a length such that the top edges thereof bite into said roll when the bracket is in position, a tab initially bent downwardly and rearwardly from said bottom at an angle of approximately 45° thereto, said tab being positioned between said tongues and being adapted to pass down through one of said openings in said head rail as the bracket is pushed down into said corner of the head rail, said tab being subsequently bent under the forward edge of said one opening to lock said bracket into said corner, and bearing means on said bracket to receive a tilt rod.

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