Dec. 22, 1953 B. WALKER 2,663,368

VENETIAN BLIND CLOSED HEADRAIL

Filed March 22, 1950

Fig. 1

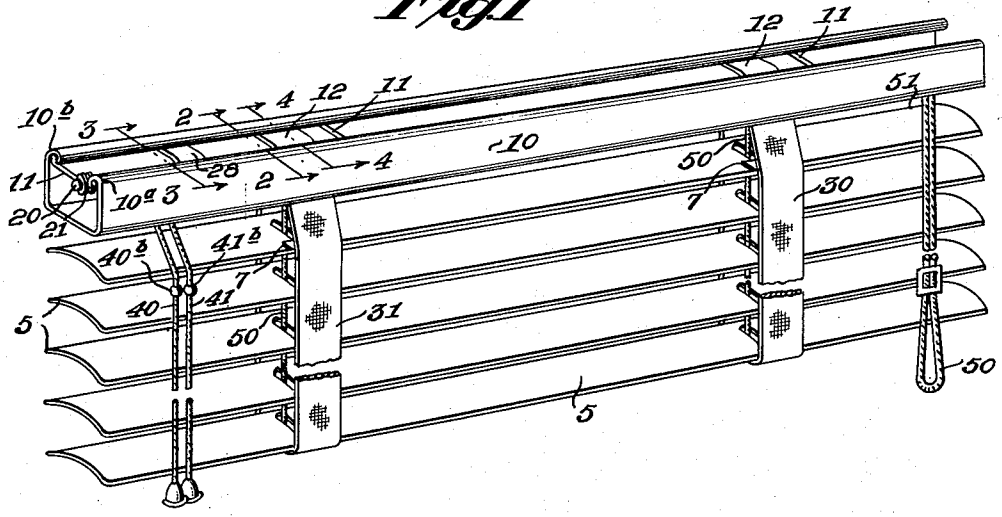


Fig. 2.

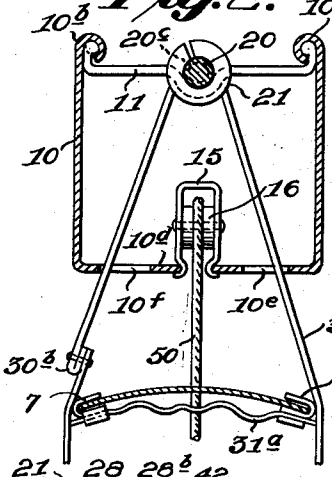


Fig. 3.

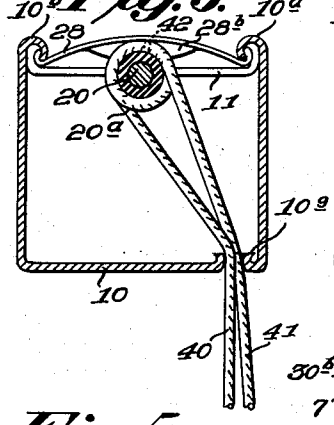


Fig. 4.

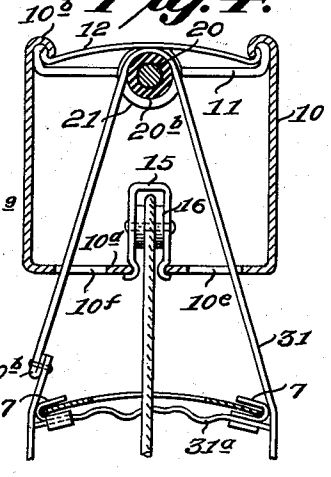


Fig. 5.

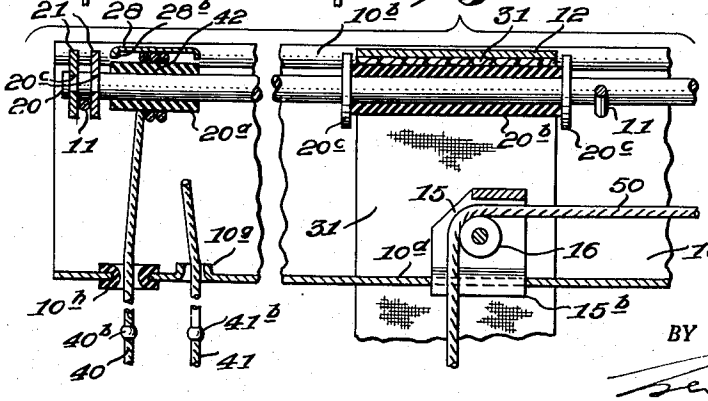
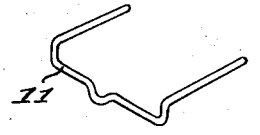


Fig. 6.



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VENETIAN BLIND CLOSED HEADRAIL

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Application March 22, 1950, Serial No. 151,231

6 Claims. (Cl. 160—177)

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The object of this invention is to provide a simpler, less expensive type of Venetian blind head rail which can be readily assembled and will perform the function of controlling the tilting of the blind as well, or better, than any of the constructions now in use and, in general, at less cost, involving fewer parts, being easier to assemble, and providing a better closure of the blind by allowing the tapes to be closer together at the top of the blind than is the case with most conventional head rails.

Another object of the invention is to provide a tilt control for the blind which is controlled by pull cords, in which the pull cords are positively secured to the rod which controls the tilt and are attached to it directly, so that they control the rotation of this tilt rod for a predetermined number of revolutions depending upon the number of wraps around the control rod by the tilt control cords.

Another object of the invention is to provide a correcting means whereby when the tilt control cords get slightly out of place with the tilting of the blind that a pull of the tilt cords to the fully tilted position will provide a re-correction of the position of the tilt rods through sliding rotation of the tilt control rod under the ladder tapes, so that no corrective means is needed such as is usually incorporated in worm type tilt gears and is currently marketed under the name "Levelor," based on the U. S. Patent No. 2,298,891.

Other objects of the invention are to provide wire supports for the tilt control rod rather than more expensive stampings and their associated high-cost dies.

Another object of the invention is to provide means in the form of a clip slidable in the edge of the slat for securing the slat to the cross rung and, in turn, to the side members of the ladder tape, so that the top slat will not slide up the side members of the ladder tape due to the inclined inner surfaces of the tops of the side members of the ladder tapes where they move inwardly from the top slat to go over the small diameter tilt control rod or tilt control rod drum.

Other objects of the invention are to provide an increase in friction between the tilt control rod and the inner surface of the ladder tapes to provide more positive tilt control but yet provide slippage when the slats are tilted to their fully tilted position and there is still some rotation control left in the tilting mechanism through the control of the tilt control rod.

Other objects of the invention are to provide

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means whereby when the blind is fully tilted, the tapes can be quite close together compared with the ordinary drum used for controlling the tilts in most tilt controls in metal head rails.

Other objects of the invention will be more particularly pointed out in the appended specification and claims.

I have illustrated my invention by way of example in the following figures in which:

Figure 1 illustrates one form of my invention in side quarter view with part of the blind cut away.

Figure 2 is a view of a portion of the blind taken at section 2—2 of Figure 1.

Figure 3 is a sectional view of a portion of the blind taken at section 3—3, and for simplicity, not showing the structure in the balance of the head rail.

Figure 4 is a sectional view showing a portion of the blind taken at section 4—4 of the head rail and top slat.

Figure 5 is a sectional view of the left hand portion of the head rail taken just inside of the center of the tilt control rod and going around the tilt control rod and its associated washers.

Figure 6 is a perspective view of one of the tilt rod supports.

In all figures, like numerals of reference refer to the same, or corresponding, parts.

In Figures 1 through 5 inclusive, I have shown a Venetian blind with a metal head rail consisting of a metal box 10, or U-shaped container, with inturned upper edges in which is located a series of wire tilt rod supports 11 which are preferably crimped under the upper curled edges of the head rail 10*a* and 10*b* respectively, and has at its center a dropped section suitable for receiving the tilt control rod 20 which preferably runs most of the length of the blind, or at least from the tilt control cords 40 and 41 past both of the slat supporting ladder tapes 30 and 31, or additional ladder tapes if they are necessary on a longer blind. Suitable supports 11 for the tilt control rod 20 may preferably be supported as shown near the tilt control drum 20*a* on which the tilt control cords 40 and 41 are wound and are also adjacent the points where the ladder tapes, such as 30 and 31, are supported by the tilt control rod 20. Where fabric ladder tapes are used, such as 30 and 31, the coefficient between a smooth tilt control rod, such as 20, may be too low and some type of friction increasing bushing, such as a rubber sleeve or or other roughened surface, may be necessary, such as 20*b*, between the surface of

the tilt control rod 20 and the inner surface of the upper looped end of the ladder tape side members 30 and 31. The side members of the ladder type are preferably joined at the rear side by sewing, stapling, stitching, cementing, or other suitable means at some point like 30b, or for economy of material a suitable smooth joint may be made up near the tilt control rod 20 when the slats are in their horizontal position which would effect a slight saving in the ladder tapes unless subsequent ladder are cut in staggered relationship so as to allow a joint such as is shown at 30b without material loss of slat supporting ladder tape material. The lifting of the blind is performed by lifting cords 50 passing through route holes in the center of the slats and operating through a cord lock 51 in a conventional manner. Washers are provided at the sides of the ladder tape, like 21, and may preferably be split and pressed into a recess rolled into the rod 20, such as 20c, or a suitable burr may be pressed on a rod to properly retain a washer in its proper position. Due to the inclined inner surface of the side members of the ladder tape above the top slat, and going from the top slat to the small diameter tilt control roller or tilting surface 20a, there may be, and generally is, a considerable tendency of the top slat to climb the inner surface during the tilting operation unless some special means is provided for keeping the slat from doing this. In this instance, I have provided a clip which clips around the cross member 31a of the ladder tape to keep clip 7 attached firmly to the cross rung 31a near the side members of the ladder tape and to provide an open, U-shaped top portion of the clip which goes over the edge of the slat but allows the slat to move in and out on the clip but without being able to climb out of the clip. Since the cross rung is a little bit longer than the width of the slat in most conventional Venetian blind constructions, it is desirable that the clips move close to the edges of the slats, allowing the side members of the ladder tapes to be close to the edges of the slat when in the horizontal position, and still to allow the cross rung under the top slat to assume a full length position when the blind is tilted in either direction so as to allow suitable motion of the side members of the ladder tapes to get the best closing of the blind in both directions when fully tilted in either direction. In order also to allow the side members of the ladder tapes to be as close together from the tilt control rod down to the top slat, it is desirable that the pulley at the center of the blind over which the lifting cord passes be as narrow as practical so as not to interfere with the close proximity of the two side members of the ladder tape when in the closed position. In this connection, I have used a snap-in type of pulley 16 that is mounted in a pulley support 15 which snaps into a rectangular hole in the bridge 10d of the head member 10. Ample cutouts 10e and 10f are provided in the bottom of the head member 10 to provide free movement of the side member of the ladder tape in passing through the head member from the horizontal slat position to the fully tilted position in both directions. To prevent the tilt cord from creeping on the tilt control rod, it may be desirable to use a cotter pin or other suitable means of fastening the center of the tilt cord to the control rod by a pin, such as 42, in the center of the tilt control cord when wound on the rod for tilt control purposes with the slats set in their horizontal position. By this construction, more rotation of the tilt rod is provided than may be necessary to just tilt the blind to the fully tilted position in both directions. However, slight additional motion through the tilt control cord will only result in a slight slippage of the tilt control rod 20 or rod tape engaging surface 21b, which will further assure tilting in that direction and will provide a corrective action at the end of the tilting in either direction. Smooth action of the tilt control cords may be provided where they pass through the head member 10. In order to prevent too much pull on the tilt control cord locking pin 42 when in the fully tilted position, it may be desirable to provide a cord stop, such as 40b and 41b, on the tilt control cords which will bump into the limited passage hole 10g or 10h when the cord has been moved into its fully tilting position in either direction and, thus, keep the excess strain off the cord retaining pin 42. In order to further retain the cord tilting controls from climbing on top of each other or getting out of place, it may be desirable to use a spring clip, such as 28, gripping the turned edges of the head member 10a and 10b and riding over the top of the tilt control cord, and thus pressing very lightly thereon and providing ears at both sides of the tilt control cord as at 28b. It may also be desirable to use a clip, such as 12, riding in the turned edges of the head rail, and riding lightly over the top of the ladder tape loop, or riding just free of the top of the ladder tape loop and below the top edge of the retaining washers 21 at both sides of the ladder tape loop. Thus, when the blind is fully lifted and the top of the ladder tape would otherwise tend to lift off of the surface 29b on which it is supposed to ride, it will retain the ladder tape between the washers so that when the blind is lowered, the ladder tape will be on the desired portion of the tilt control rod 20.

I do not wish in any way to limit myself to the exact details or mode of operation set forth in the specification and drawings, for it will be obvious that departure may be made in the way of details without departing from the spirit and scope of my invention which is set forth in the following claims.

I claim as my invention:

1. In a Venetian blind, a head rail of channel form including opposite side walls and a base, a tilt rod, bearing means for the tilt rod operatively engaged with and supported by the free edges of said side walls, apertures in said base, a ladder tape including spaced parallel slat supporting portions beneath said base and upwardly converging loop forming portions extending through said apertures and around said tilt rod.

2. The structure according to claim 1 together with clip means secured to the upper rung of said ladder tape adjacent the junction of said first and second tape portions, said clip means including portions loosely receiving the opposite edges of a slat supported on said rung.

3. In a Venetian blind, a head rail of channel form including opposite vertical side walls and a horizontal base, inturned flanges on the free edges of said side walls, bearing brackets including edge portions received in and supported by said flanges, a tilt rod rotatably supported by said brackets, said base being provided with transversely spaced openings, a ladder tape comprising a loop portion supported on said tilt rod

and including downwardly diverging side portions extending through said openings, said tape including other parallel side portions having interconnecting rungs, and slats supported on said rungs.

4. The structure according to claim 3 wherein said loop portion engages a sleeve surrounding said tilt rod in frictional engagement with the rod and the tape.

5. The structure according to claim 4, together with axially spaced flanges on said tilt rod and between which said sleeve is disposed.

6. The structure according to claim 4, together with a spring pressure member supported by said flanges and bearing on said tape above said sleeve.

BROOKS WALKER.

References Cited in the file of this patent

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2,175,549	Nardulli et al.	Oct. 10, 1939
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