Dec. 14, 1954 B. WALKER 2,696,879

VENETIAN BLIND

Filed June 17, 1950

Fig. 1.

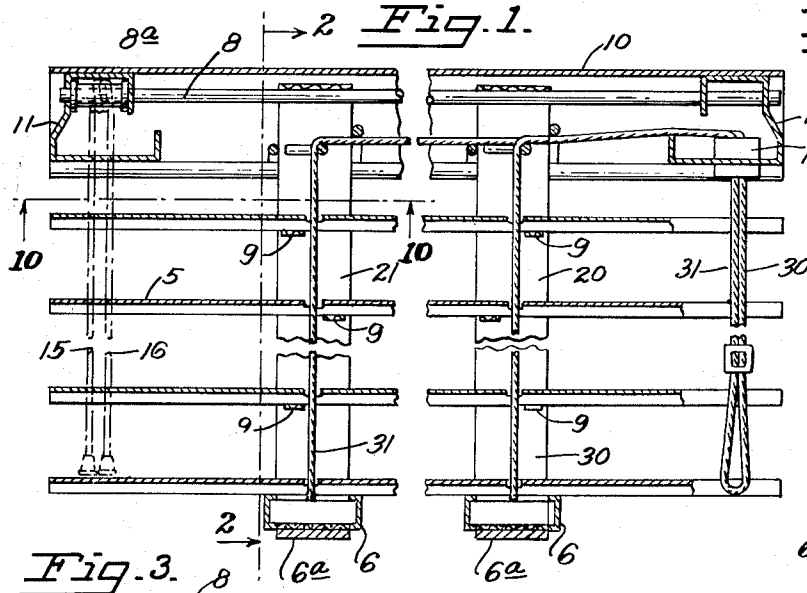


Fig. 2.

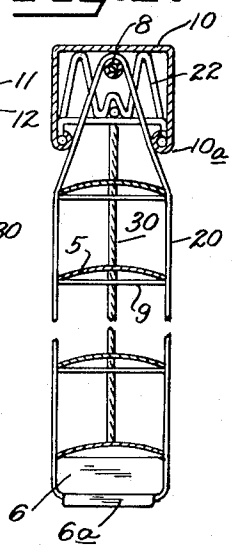


Fig. 3.

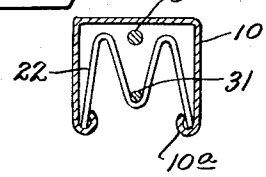


Fig. 4.

Fig. 11.

Fig. 7.

Fig. 6.

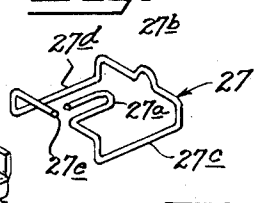


Fig. 10.

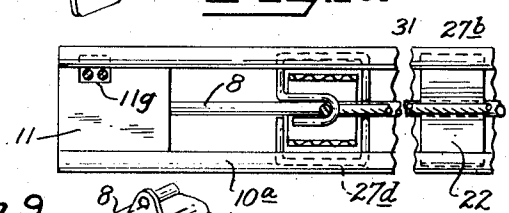


Fig. 5.

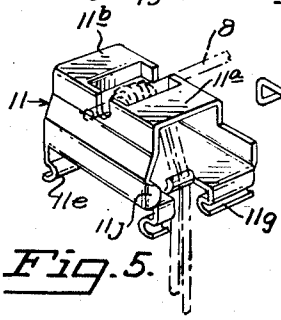


Fig. 9.

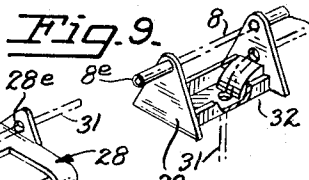
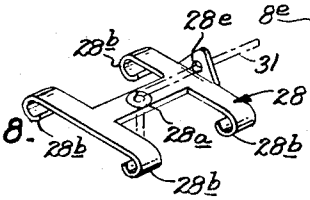


Fig. 8.



INVENTOR.

Brooks Walker

United States Patent Office

2,696,879

Patented Dec. 14, 1954

2,696,879

VENETIAN BLIND

Brooks Walker, Piedmont, Calif.

Application June 17, 1950, Serial No. 168,715

7 Claims. (Cl. 160—168)

This invention pertains to a Venetian blind head rail, and particularly to a simplified form of head rail, in which a U-shaped channel is used as the head rail with the open side of the channel facing towards the slats. The tilt rod supporting and tape and cord guiding brackets are placed in position by snapping them into the lower curled edge of the head rail or sliding them into place with spacers between the component parts, and the end brackets are held in place by end caps or other suitable attachments to the head rail main piece.

Another advantage of this construction is the use of similar brackets for the end supports of the tilt rail where one controls or supports the tilting mechanism and the other supports the cord lock position, the brackets at both ends being substantially the same but with one having the cord lock inserted and the other having the tilt mechanism assembled in it.

Other advantages of the construction are the simplicity in manufacturing, as the Venetian blind plant only requires a simple cutoff tool for the head rail material which it buys in stock lengths. The blind can be very readily assembled on the simplified tilt rod, the tapes can be stapled, sewed, or welded together to form a loop at the upper ends and assembled over the tilt rod, and the cords can be easily assembled prior to mounting of the component parts in the head rail. After assembly of all of the parts with ample space to work, the entire assembly can either be slid in from the end of the head rail or snapped into their respective places. The tapes are accurately positioned so that the slats will always fall in the same relative position with respect to the location of the head rail.

Another object of the invention is to provide very simplified inserts for turning the lift cord from the vertical to the horizontal position inside the head rail, formed of either a simple stamping which may be snapped into position or a simple bracket of bent wire which may be snapped into position. In case there is any objection to snapping the brackets into position, a very simple bracket which acts as a center support for the tilt rod and a support for the cord turning device may be used which is held in position by spacers between the end brackets and the center support tape guides. This construction allows all of the mechanism to be assembled outside of the head rail, and then snapped into place in the head rail or slid in from the end of the head rail, with spacers over the tilt rod or upsets on the tilt rod to provide the necessary spacing adjustment of the various parts and to take care of the end thrust of the cord tilts.

A further advantage of this construction is that complicated stamping equipment for punching intricate holes for the passage of the tapes, the mounting of the lift cord pulleys, the passage of the tilt mechanism, and the passage and mounting of the cord lock are all eliminated in this construction, as the head rail can be cut to length, the component parts kept in stock and assembled without the necessity of measuring and punching the head rail which is common with many U-shaped head rails now used by the Venetian blind industry where the top or open side of the U is usually upward and a series of holes must be provided in the bottom of the U-channel.

Other features of the invention will be pointed out in the accompanying specifications and claims.

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

Figure 1 is a side elevation of a Venetian blind partly cut away and showing one form of the invention.

Figure 2 is an end elevation of the construction shown in Figure 1 taken at section 2—2.

Figure 3 is a section of the head rail, shown in Figure 1, taken at the point of a lift cord support which may be used midway between the ladder tapes.

Figure 4 is a perspective view of the head rail shown in Figures 1 and 2 viewed in enlarged scale.

Figure 5 is a perspective view of the end bracket which carries the tilting mechanism that may be inserted in the head rail.

Figure 6 is a perspective view of an insert made of wire which may be used at the location of the ladder tapes for locating the ladder tapes and for acting as a cord turning device.

Figure 7 is a perspective view of an insert which may be used to support the lift cord between the ladder tapes as is shown in Figure 3.

Figure 8 is a perspective view of another form of insert which may be used to guide the ladder tapes and to act as a cord turning device to change the lift cord from a vertical motion to a horizontal motion within the head rail **10**.

Figure 9 is a perspective view of another type of insert which may be held on the tilt rod in its appropriate position by spacers on the tilt rod, locates the ladder tapes, and provides a turning guide for the lift cord.

Figure 10 is a bottom view of a portion of the head member with some of the inserts in place.

Figure 11 is a perspective view of the same type of end bracket as shown in Figure 5 which may be used in the other end of the head rail, and showing the cutout for the mounting of the cord lock.

In all figures, like numerals of reference refer to the corresponding parts in the various views.

Referring to Figures 1, 2, 3, 4, and 10, I have shown a head member **10** which is of a rectangular U-shaped channel with curled lower edges **10***a* which are laterally spaced apart a distance less than the width of the slats **5**, as shown in Fig. 2. This head member is preferably unpunched for the location of the ladder tapes **20** and **21** which support slats **5** on conventional ladder tape cross rungs **9**. The bottom of the ladder tapes are secured together by bottom weights **6**, which preferably have tape caps **6***a*, which are more particularly described in my co-pending application, Serial No. 124,075, now U. S. Patent 2,652,112. A simplified tilting mechanism is provided in small diameter rod **8**, on which is mounted a sleeve **8***a*, around which are at least three turns of the tilt control cords **15** and **16** which are preferably anchored at one point to the slat tilt control rod **8**, as by a cotter pin running through the rod in a manner such as is illustrated in my co-pending application, Serial No. 122,638.

Interchangeable end brackets are shown in Figures 5 and 11, as well as in Figures 1 and 2. These end brackets support the slat tilt control rod **8** in end bearings **11***c* so that the tilt rod **8** is disposed substantially above the center and near the top of the inverted U-shaped head member **10**, as shown in Figs. 1–4, and one of such brackets suitably houses the tilting control wraps of tilt cords **15** and **16**. It also provides a passage for the tilt cords **15** and **16** by cutout **11***g*, which provides a space where the tilt cords can pass through the end bracket **11** and down outside of the edge of the slats **5**. The ears **11***a* and **11***b* act as guides for the tilt control cords and keep them from piling on top of each other, and also keep them within the desired limits of travel on rod **8** where it has the enlarged sleeve **8***a*. Curled ears **11***e* and **11***f* are so formed as to nest in the lower curled edges **10***a* of the head member, and they can be slid in endwise in the head member **10** until ear **11***j* abuts against one end of one side wall of head member **10** to prevent the end bracket **11** from going farther in than is desired. When the end bracket **11** is reversed and is inserted in the other end of the head rail **10**, it acts as a support for the slat tilt control rod **8**, if necessary, and also acts as a mounting for the cord lock **12** which is snapped into rectangular hole **11***c* in a manner common to use

in the industry, particularly in head rails made by the Hunter Douglas Company at present.

The ladder tapes are of cloth, plastic, or other suitable material, and have their side members secured together by stapling, welding, or such other manner as may give the best performance, and this looped end is passed up through the slat in the head rail and looped over tilt control rod 8 providing a friction drive between the slat tilting rod 8 and the looped end of the ladder tapes providing a more positive tilt control as disclosed in my co-pending application Serial No. 151,231, filed March 22, 1950, now Patent Number 2,663,368, prior to assembling the component parts in the head rail. Guide means for the ladder tapes at the appropriate spacing is provided by a bracket, such as is shown in Figure 6, which may be formed of wire, and allows the looped ladder tape to be inserted through the opening 27*e*, if necessary, in case the ladder tape is assembled or disassembled by removing rod 8 and leaving bracket 27 snapped in place with portions 27*c* and 27*d* snapped into the curled lower edge 10*a* of the head member. The U-shaped portion in 27*a* may form the guide for turning the lift cord 31*a*, and hump 27*b* may also guide the lift cord 31 and prevent it from going upward and getting caught in the space between the tilt rod 8 and the under side of the ladder tapes 20 and 21.

Another type of bracket, as shown in Figure 8, is formed of a stamping with curled edges 28*b* which may be snapped into the curled edges 10*a* of the head member and secured into position against lateral displacement by a slight crimping of the curled edge 10*a*, if necessary. A round, smooth guide, such as 28*a*, may be provided for turning the lift cord 31, and an additional guide hole 28*e* may be provided in turned up lip 28*c* to prevent the tilt when slack from getting caught between the looped, upper edge of the ladder tape and the tilt rod.

Another form of ladder tape spacing and cord turn 29 may be formed as shown in Figure 9, where the upper ends 29*a* and 29*b* are provided with a suitable hole or bearing through which rod 8 passes for intermediate support when the lower corners of the insert 29 are resting on the curled edges of the head rail 10. The center portion of insert 29 is preferably turned upwards, with a half round wooden insert 32 secured in place for acting as a cord turn guide for lift cord 31. The half round hardwood insert may have a groove for guiding the lift cord 31, which also has the advantage of not marking it, this being one of the usual difficulties when the lift cord is turned in sliding engagement over a metal guide. Insert 29 is spaced in the head rail by sleeves 8*c* and 8*d*, or other suitable means.

The bracket 22 shown in Fig. 7 is positionable between adjacent ladder tapes and functions to support the lift cord at points intermediate adjacent ladder tapes.

I do not wish in any way to limit myself to the exact details or mode of operation set forth in the specifications 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. A Venetian blind comprising a head rail of inverted U-shaped channel form throughout the length thereof, said rail including opposed generally parallel side walls having inwardly turned laterally spaced flanges adjacent the lower edges thereof and providing a slot which is co-extensive with said rail, a supporting bracket mounted in said head rail on said inwardly turned flanges adjacent the ends thereof, a rotatable slat tilting rod journaled at its ends in said brackets and extending longitudinally through said head rail above said slot, slats carried by a pair of ladder tapes, said tapes each having continuous upper end portions extending through said slot and looped over and directly supported upon said rotatable slat tilting rod for driving engagement therewith, tape guiding means also mounted in said rail on the inwardly turned flanges thereof and within the loops of said ladder tapes retaining said ladder tapes in a desired position, said guide means having a height adjusting means opening therein registering with said slot, means connected to said slat tilting rod to rotate same in its journals through more than 360° in one direction to control the tilt of said slats, and a second means adjusting the height of said slats.

2. The Venetian blind defined in claim 1, wherein the supporting brackets are interchangeable and each thereof comprises an upwardly opening bearing for one end of the rotatable slat tilting rod, a passage for said rod rotating means, and an abutment ear engageable with a respective end of one of the side walls of said head rail to retain the bracket in a desired position in the flanges thereof.

3. The Venetian blind defined in claim 2, wherein said supporting brackets each comprise a member having two horizontally disposed levels connected together by a vertical portion at the outer end thereof, said vertical portion having said upwardly opening bearing for rotatably supporting said slat tilting rod, a central cut-out in the upper said horizontal level adjacent said bearing providing clearance for said rod rotating means, an aperture through one side of said lower horizontal level permitting passage of said rod rotating means, said aperture having at one side a rounded guide and a second aperture portion on said lower level on the side opposite said first aperture permitting insertion of said height adjusting means and a braking means therefor.

4. The Venetian blind according to claim 3, wherein said rod rotating means comprises cords wound more than twice around said slat tilting rod having the ends thereof hanging down through said first aperture of one of said brackets against said rounded guide, said height adjusting means comprising cords passing down through the slats and secured below the bottom slat and said height adjusting cords having a loop extending down through the second aperture of the other said bracket.

5. The Venetian blind defined in claim 1 wherein the tape guiding means comprises a member having transverse restraining portions for holding said ladder tapes in alignment, a horizontal aligning means and a vertical aligning means for said height adjusting means in general horizontal alignment with each other but with the vertical aligning means lower than the said horizontal alignment.

6. The Venetian blind defined in claim 1, wherein said rotatable slat tilting rod is journaled in said brackets so that said rod is disposed substantially above the center and near the top of the inverted U-shaped channel.

7. The Venetian blind defined in claim 1, wherein the flanges of the side walls of said rail are laterally spaced a distance less than the width of the slats carried by said tapes.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,165,292	Morse et al.	July 11, 1939
2,200,143	Wolfe	May 7, 1940
2,409,821	Albrecht	Oct. 22, 1946
2,410,549	Olsen	Nov. 5, 1946
2,503,876	Krauss	Apr. 11, 1950
2,505,943	Charbonneau	May 2, 1950
2,534,080	Stuber et al.	Dec. 12, 1950
2,618,329	Nelson	Nov. 18, 1952
2,652,113	Schaefer	Sept. 15, 1953