March 10, 1959 B. WALKER 2,876,834

VENETIAN BLIND

Filed Dec. 17, 1953

Fig. 1.

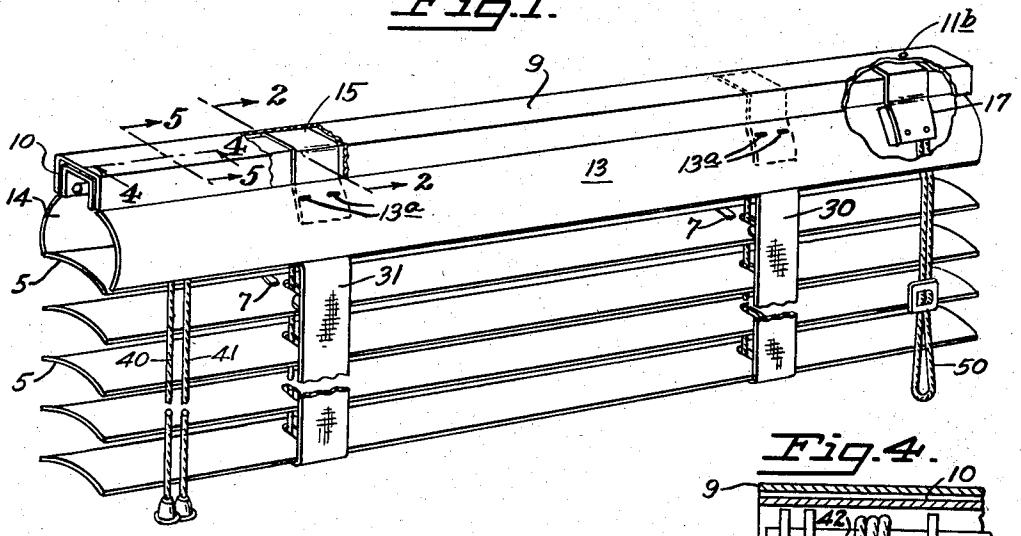



Fig. 4.

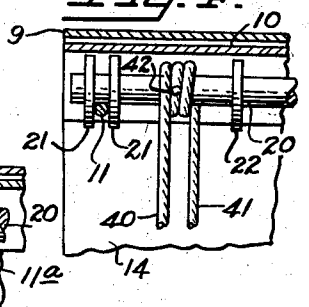



Fig. 2.

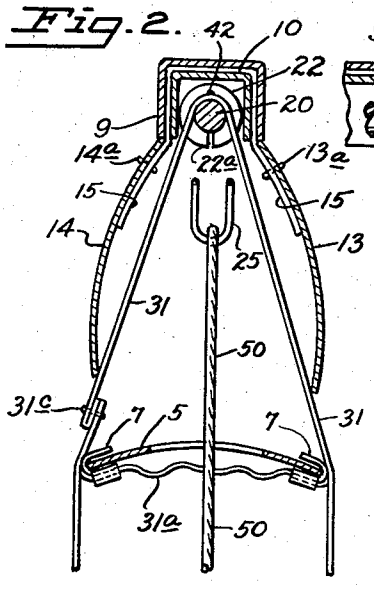



Fig. 3.

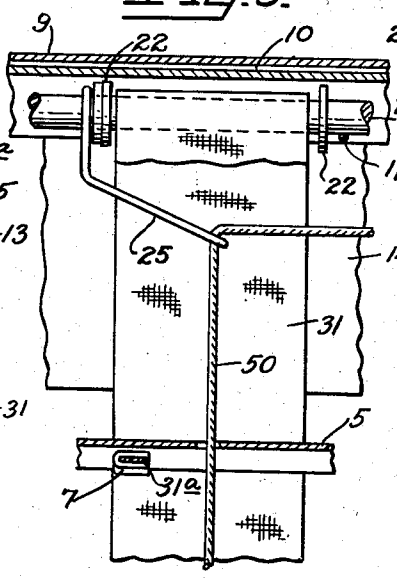



Fig. 5.

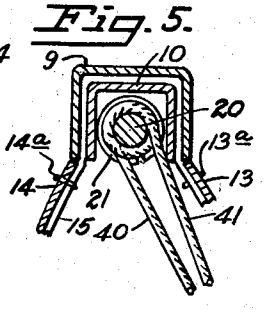



Fig. 7.

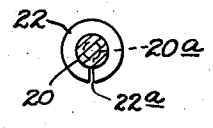
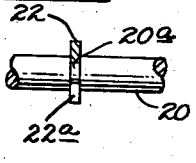



Fig. 6.




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# VENETIAN BLIND

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Application December 17, 1953, Serial No. 398,704

7 Claims. (Cl. 160—168)

This invention relates to improvements in Venetian blinds and relates particularly to improvements in the upper portion of Venetian blinds, including the parts known as the head rail, the upper tilt rod, the upper slats, and so on. This application is a continuation-in-part of my application, Serial No. 158,099, filed April 26, 1950.

The invention solves several problems in the Venetian blind art and is generally concerned with the problem of making less expensive Venetian blinds which are also equally good as, or better in performance than, the prior art blinds.

One thing that has stood in the way of reducing the cost of Venetian blinds has been the large number of different stock items that have been required. Head rails and tilt bars have heretofore been bulky parts that had to be carried in stock and cut off at the desired length for each blind, and numerous items of hardware concerned with the head rail and upper tilt rod also were required, because of the structure of prior art Venetian blinds. Also, such parts as gears, cord locking mechanisms and similar pieces were used in combination with the cords, and all these items had to be carried in stock. Also a great variety of fascia pieces in every color had to be kept on hand to match the blind slats. The present invention has solved the problem of materials cost, partly by reducing greatly the number of different items that are required in each Venetian blind. In some instances the present invention substitutes cheaper, simpler items for more expensive and more complicated ones. For example, numerous punching operations were necessary in manufacturing prior art Venetian blind head rails, involving costly machinery and introducing the possibility of costly errors.

Another problem with Venetian blind installation which added to the expense was that of the labor cost. This resulted partly from the time it took to assemble a large number of different parts and partly from the difficulties of assembling these parts. The blind usually had to be assembled by feeding the tape sides through narrow slots in the head rails and securing the tape ends to the tilt mechanism, tried out, adjustments made, and finally set into place, and it was not easy to set it in place. The invention has solved this problem by producing blinds from fewer parts, by making these easier to assembly because the slats, tapes, and cords are assembled on the tilt rod and then the rod and assemblies inserted and secured in the open bottom head rail, making it easy to assemble in the factory and to service the blind in the home.

Another problem solved by this invention is that of reducing the shipping cost, which was kept high by the amount of space the unassembled parts of prior art blinds consumed. This problem has been solved by making the blinds from fewer parts and using parts which take up less room than did the parts previously used.

Another object of this invention is to provide a construction whereby less material is needed for the head rail and less window glass is covered by the raised blind than with conventional prior art constructions.



The invention, then, includes as some of its objects: the provision of a more economical headrail construction; the provision of a Venetian blind that can be packed more compactly than prior art blinds, for economical shipment; the reduction of the number of stock parts which are used to produce a satisfactory Venetian blind; the elimination of some stock parts completely, by changes in structure; and the provision of a greatly simplified and less expensive Venetian blind generally.

The blind of this invention makes it possible to replace the upper tilt bar, which was formerly a heavy piece of material or bulky inserts on a flattened rod, with a simple metal rod. My invention also makes it possible to replace the type of head rail formerly required with a channel bar, which is used in inverted position and comprises nothing but the simplest channel member. This novel head rail can be made relatively narrow and shallow, whereas prior art Venetian blinds had to have bulky head rail mechanisms. When inverted channel members were used, they were not used as the head rail but as a cover to hide the unsightly portions of the head rail, while in my present invention the inverted channel member itself is the head rail and need house only the tilt rod, which is a simple straight rod of metal arranged for rotation in the head rail. From this rod is suspended the entire remainder of the Venetian blind. Another feature of this structure is that the tilt rod itself can be so closely nested within the inverted channel head rail that the tilt cords are thereby retained in their proper position and are prevented from getting on top of each other. This means that they will wind evenly and will always be in the right position for controlling the rotation of the tilt rod.

Another feature of the invention is the movable opaque side appendages to the head rail sides that form a light lock for the top edge of the top slat in the slat-closed position.

Other features of my new invention include the use of Venetian blind slats, or pieces identical therewith, for fascias or movable side members of the head rail. In my construction the fascias are made to swing outwardly when the blind is pulled up to its top position, so that the blind's slats can be raised as near to the inverted channel head rail as is physically possible. My fascias closely hug the ladder tapes when the blind is in its lowered position and swing out as the slats are raised. This structure enables the blind to obstruct only a minimum area of the window when the blind is raised. By using scrap ladder tape as hinges for the slat fascias and by attaching the fascias to the tape by staples, the matter of fascia construction is made extraordinarily simple, as compared with the present day practice of providing elaborately-made selections of different types of fascias, all of which meant keeping bulky stocks of fascias.

My invention also contemplates the use of Venetian blind slats or slat material to make a cover for the head rail when the fascia construction is used, thereby making it possible to match exactly any color of slat, where many colors are readily available; and therefore the head rail cover and the fascias will match the slats perfectly. This further reduces the number of stock pieces which have to be carried and guarantees exact color matching of the important parts.

Other objects and advantages will appear from the following description of preferred embodiments thereof, presented in accordance with 35 U. S. C. 112.

In the drawings:

Fig. 1 is a side quartering view of a Venetian blind showing one preferred form of my invention, some parts of the blind being cut away.

Fig. 2 is an enlarged view in section of a portion of the blind, taken along the line 2—2 of Fig. 1.

Fig. 3 is a view in section taken lengthwise of the blind through the head rail at the location of the left-hand ladder tape of Fig. 1, showing the upper portion of a portion of the blind only.

Fig. 4 is an enlarged view in section taken along the line 4—4 in Fig. 1 showing the head rail and tilt mechanism.

Fig. 5 is an enlarged view in section taken along the line 5—5 of Fig. 1 showing the upper portion only of the head rail, the tilt rod and the tilt cord.

Fig. 6 is a view in elevation and partly in section of the tilt rod with a split washer.

Fig. 7 is a view looking at Fig. 6 from the left with the tilt rod shown in section.

In my invention I employ as the head rail an inverted channel **10**. This channel member **10** may be much narrower than the Venetian blind slats **5** and may be very shallow. In fact the top and side walls of channel member **10** are, as indicated in Figs. 2 and 5 in substantially equally spaced relation to the axis of the tilt rod **20**. It is several times smaller than the head rails that have been required by the prior art constructions, in which the head rail was employed to house a tilt bar as wide as the slats, together with complex tilt mechanisms and other control mechanisms for the blind, and in which expensive and complicated hardware had to be used. While channel members have been used before in Venetian blinds they were not used as a head rail, but merely as a cover to hide the Venetian blind tilt mechanism, and their inverted channel members had to be wider than the slat of a Venetian blind and therefore consumed more room. My channel member is made narrower than the Venetian blind slat, preferably about half as wide as a slat, and this structure is possible because of the employment of a novel tilt control and blind suspension mechanism, next to be described.

My novel tilt control rod **20** may simply be an iron rod, which may be cut to any desired length when making up the blind. On the rod **20** I mount a series of control discs or washers **21, 22**, preferably by scoring, rolling, or cutting a recess **20***a* in the tilt rod **20** and then installing split washers **21, 22** in the annular groove **20***a*, shown at Figs. 6 and 7, with the split portions **22***a* making the assembly possible. However, the washers **22** could be crimped on the rod **20** or other suitable washer locating means may be used.

Two washers **21, 21** are preferably located near the left end of the rod **20**, as viewed in Fig. 1. As shown in Fig. 4, the space between these two washers **21, 21** is just sufficient to receive a support pin or rivet **11** which is mounted in the head rail **10**, which provides a means for supporting the left hand side of the Venetian blind, so that the rod **20** is rotatable thereon. This support for the tilt rod **10** is very simple. The rivet or pin **11** may be placed across the channel **10**, extending into openings in the sides of the head rail **10**. When the blind has been fully assembled, its installation is very simple. The rod **20** is then held at a substantial angle to the head rail **10**, and the washers **21, 21** at the left side are inserted over the support pin **11**, which is already in place. The right hand side of the tilt rod **20** is then raised into its position inside the channel member **10** and then one or more other support pins, such as the pin **11***a* shown in Fig. 3, may be inserted at any location. The rod **20** is thus held in the channel head rail **10** for free rotation. Preferably, one pin **11***a* is located near the cord lock **17**, so that the tilt rod **20** will be supported near the point of pull on the cord lock as shown by **11***b* in Fig. 1.

This very simple support for the tilt control rod **20** is a very important feature of the invention, and it should be borne in mind that the size of the channel member **10** need be, and preferably is, only large enough to permit free rotation of the washers **21, 22**. This reduction in size saves material and also saves space when shipping the blind. It also aids materially in preventing the tilt cord from climbing over itself, as will be shown later.



The tilt cord comprises a unitary rope with two portions **40, 41**. The rope is wound round the tilt rod **20** between two and three times. Fewer than two times will not give sufficient friction, while more than three times is unnecessary and requires additional rope. It is unnecessary in this invention to secure the cord **40, 41** otherwise than by winding it around, because the friction is sufficient anchorage; however, if no creep is desired, pin **42** as shown in Fig. 4 will suffice. When either cord portion **40, 41** is pulled, the rod **20** will tilt and thereby tilt all of the slats **5**. The close nesting of the rod **20** and its washers **21, 22** in the channel **10** prevents the cord **40, 41** from climbing over itself and makes this simple and novel cord mechanism possible, for the spacing of the rod **20** from the side walls and top wall of the channel **10** is greater than the diameter of the cord **40, 41** and less than twice the cord diameter. If the cords **40** and **41** get out of length adjustment they can be adjusted by pulling the shorter one all the way until pin **42** is in line with the cord being pulled. The rod **20** will rotate under the ladder tapes after the slats are fully tilted, and the cords **40** and **41** will again be in adjustment.

The slats **5** are supported in the normal manner in spaced relationship by ladder tapes **30** and **31** (more tapes being used where necessary to hold up wider blinds). The bottom rail and the bottom portion of the blind are not shown, because they form no part of the novelty of this invention, and either a bottom rail piece or a bottom slat with weights may be used.

The ladder tapes **30** and **31** pass over the rod **20**, and preferably the front and rear sides are continuous, their upper ends preferably being joined; for example, the front side of each ladder tape **30, 31** may extend over the tilt rod **20** and pass down on the other side, being secured to the rear face of the same ladder tape at **31***c* by staples, sewing, welding, cementing, pinning or other suitable means (see Figs. 2 and 3). The looped upper end of each ladder tape simply rests on the tilt rod **20**, preferably between suitably spaced washers **22**, as shown in Fig. 3.

The lift cord **50** passes through route holes in the slats and then over a wire turn guide **25** (Figs. 2 and 3) which is itself suspended from the tilt rod **20**, as shown in Fig. 3, by being hooked over it at the left of that washer **22** which is at the left of the ladder tape **31**. With this assembly, the ladder tapes **31, 32** and the lift cord **50** are thereby supported without causing any increase in size of the head rail, simply by using the tilt rod **20** to perform all of the functions formerly performed by complex head bars.

When the Venetian blind is being closed, by tilting the slats, the top slat **5** would tend to climb the inside surface of the ladder tapes **31, 32**, and the narrow head bar **10** would cause complications. To prevent this, I provide clips **7**, which are secured to the ladder tape rungs **31***a* under the top slat **5**. These clips **7**, as shown in Figs. 2 and 3, allow the top slat **5** to slide along the cross rung **31***a*, so that the side members of the ladder tape **31** hug the top slat **5** closely, when the slats **5** are in their horizontal position, and will allow the cross rungs **31***a* to assume their full length when the ladder tapes **30, 31** are rotated into their narrow, fully-tilted position in either direction. The provision of this sliding structure gives the necessary relative motion which permits the blind to close fully without causing complications at the top of the blind.

Where it is desired to use fascias to hide from view the mechanisms at the upper end of the Venetian blind, and prevent or reduce light leakage past the top of the top slat and the head rail, two fascia slats **13** and **14** may be employed. These slats **13** and **14** may be identical with the slats **5** of the Venetian blind, except that they are of course not provided with the route holes, which are

punched in the slats at the time the dimensions of the blind have been determined. Using this conventional slat stock, the slats **13, 14** are secured to a flexible fabric or plastic strap **15** which may be made from scrap ladder tape. Staples **13***a*, **14***a*, which may be clips, snaps, rivets or tape loops may be used to effect this securing of the strap **15** to the slats **13, 14.**

To cover the flexible straps **15**, that fit over on top of the inverted channel member **10**, and to prevent the straps **15** from getting loose, and to retain them in position, I prefer to take another conventional unpunched Venetian blind slat, shape it as a channel member **9**, and place it over the straps **15** and the head rail **10**. This channel shaped slat **9** can best be used where the three sides of the head rail **10** are approximately equal to the width of the Venetian blind slats **5**, one of which is formed into the cover member **9**. For this reason, the channel member **10** is preferably made about one-half the width of the blind slats **5**, and its two depending arms are each about one-quarter of the width of a Venetian blind slat.

By using these flexibly suported fascia pieces and the very shallow head rail, the Venetian blind can be pulled up very high relative to the top of the head rail **10**, because the fascia slats **13, 14** will move out to a semi-horizontal position when the blind is fully raised. The fascia slats **13** and **14** can of course be removed and packed under the bottom slat when the blind is being shipped, and this feature also reduces the transportation and packing costs.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

I claim:

1. A Venetian blind including in combination a rod; a tilt cord for rotating said rod; ladder tapes supported by said rod; blind slats supported by said ladder tapes; a lift cord for raising and lowering said slats; and a head rail comprising a narrow inverted rigid channel member about half as wide as said blind slats and having depending sides with lower edges, said rod being rotatably supported in said channel; and a pair of fascia slats, supported as extensions of said channel by a flexible joint along said lower edges outside said ladder tape, so that said pair of fascia slats serve as movable side members of said head rail and swing out to permit the collapse of the blind toward the rigid portion of said head rail.

2. The blind of claim 1 in which said flexible joint compresses fabric strips supported by the rigid channel member and secured to the swinging portions of said head rail.

3. A Venetian blind including in combination a head rail comprising a narrow inverted channel member; a rod rotatably supported in said channel; a tilt cord for tilting said rod; ladder tapes supported by said rod; blind slats supported by said ladder tapes, said channel being less than half as wide as said blind slats; a lift cord for raising said blind slats; and a pair of fascia slats, supported along the lower edges of said head rail outside said ladder tape by strips of tape material overlying said head rail and secured to one longitudinal edge of each said fascia slat, said fascia salts serving as flexible side members of said head rail that swing out to permit the collapse of the blind toward said rigid narrow head rail.

4. A Venetian blind including in combination a head rail comprising a narrow inverted rigid channel member; a rod rotatably supported in said channel; a tilt cord for rotating said rod, ladder tapes supported by said rod; blind slats supported by said ladder tapes, the upper surface of said channel less than half as wide as said blind slats and the sides of said channel being each less than half the width of said blind slats; a lift cord for raising said blind slats; a pair of fascia slats supported at the opposite pair of lower edges of said head rail outside said ladder tape by a strip of ladder tape material passing over said channel member and secured to the inner faces of said pair of fascia slats, so that said pair of fascia slats serve as flexible side members of said head rail and swing out to permit the collapse of the blind toward said rigid channel member; and a cover slat identical with said fascia slats but bent into a channel shape over the top and at least one side of said channel member and covering said strips of ladder tape.

5. In a Venetian blind, the combination of a rigid channel head rail, tilt mechanism nested in said head rail, ladder tapes supported by said tilt mechanism, blind slats carried by said ladder tapes, and fascia slat similar to said blind slats, and means for flexibly suspending each of them along a longitudinal edge from the opposite longitudinal edges of said channel to form hinged side extensions of said head rail.

6. A Venetian blind including in combination a plurality of slats; an inverted channel member whose overall width is substantially narrower than said slats and having a top wall and opposite side walls; a relatively small diameter cylindrical tilt rod rotatably supported in said channel in closely spaced relation with said top wall and side walls and having its axis in uniformly spaced relation to said top wall and side walls; a plurality of ladder tapes each formed in a continuous loop extending over said tilt rod and having a plurality of cross rungs supporting said slats; and a tilt control cord wound around said tilt rod more than two complete turns and less than three complete turns, the uniform space between said rod and said top and side walls of said head rail being greater than the diameter of said cord but less than twice the diameter of said cord so that the tilt cord cannot climb over itself.

7. A Venetian blind including in combination a metal rod having a plurality of spaced washers secured thereon; ladder tapes looped over said rod; slats supported by said ladder tapes; and a tilt control cord for rotating said rod so as to tilt the slats of said blind; and an inverted channel member whose overall width is substantially narrower than said slats with pins bridging horizontally between the side walls of said channel member, said rod resting rotatably on said pins for free rotation in said channel member, with a pair of spaced washers disposed one on each side of one pin to secure the rod against axial movement, the clearance between said washers and said head rail being close and substantially narrower than the thickness of said cord, said channel member having a top wall and opposite side walls which are equally spaced from the axis of said rod.


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