VENETIAN BLINDTLTER

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Application October 1, 1952, Serial No. 312,571

6 Claims. (Cl. 160—175)

This invention relates to Venetian blind tilters.

An object of the invention is to provide an improved tilter for Venetian blinds, which is extremely simple and economical to manufacture while at the same time being effective and reliable in its operation over an extended period of use.

Another object of the invention is to provide an improved Venetian blind tilter as above set forth, in which the blind is small and compact so that it may be readily installed in the limited space available inside enclosed head rails.

A further object of the invention is to provide an improved and simplified cord guide in a Venetian blind tilter which may be economically fabricated from sheet metal by simple blanking and stamping operations and which effectively guides and confines the pendant strands of a cord reeved over the tilter pulley.

A still further object of the invention is to provide an improved cord guide as above characterized, which enables the cord to be easily and quickly installed and reeved over the pulley and which presents smooth non-abrasive surfaces for engagement by the cord, to prevent undue wear or attrition of the cord during use.

A feature of the invention resides in the specific construction and arrangement of the cord guide and tilter bracket whereby these parts may be easily and quickly secured together to provide for sturdy support of the cord guide.

Other features and advantages will hereinafter appear.

In the accompanying drawings:

Figure 1 is a front elevational view of an improved Venetian blind tilter made in accordance with the invention.

Figure 2 is a side elevational view of the tilter.

Figure 3 is a top or plan view of the tilter.

Figure 4 is a bottom view of the tilter.

Figure 5 is a vertical sectional view taken on line 5—5 of Figure 1.

Figure 6 is a perspective view of the cord guide member of the tilter.

As shown in the drawing, the improved tilter of this invention comprises a base generally designated by the numeral 10, said base being in the form of a housing having side plates 11 and 12 joined by a U-shaped yoke 13 formed of a sheet metal stamping, the side plates being secured against opposite edges of the yoke as shown. Any suitable means of securing may be employed, as for example projections 14 on the yoke 13 extending through the side plates and projections being staked over to maintain the plates in their proper positions.

The side plates 11 and 12 have laterally extended feet 16 and 17 provided with notches 18 by means of which the base or housing 10 may be secured to the head rail of a Venetian blind.

Refer to Figure 5. The U-shaped yoke 13 has extruded or drifted bearing apertures disposed opposite each other, for rotatably carrying shank portions of a worm 19 which latter may be advantageously formed of a molded plastic composition such as nylon (synthetic fiber-forming polymeric amide of protein-like chemical structure). The worm 19 may have an axial bore to receive a stud 20 mounting a pulley 21 in a position exterior of the housing 10.

Refer to Figures 3 and 5 the side plates 11 and 12 have extruded or drifted apertures rotatably mounting a worm gear 22 adapted to mesh with the worm 19, said gear having a D-shaped bore 23 to receive the tilter shaft of the Venetian blind. Preferably the worm gear 22 is also molded of nylon or other suitable plastic.

In accordance with this invention novel and simplified means are provided for positioning the worm 19 and holding the same against axial movement. This means comprises a shoulder 24 on one shank of the worm, adapted to engage the outer surface of the yoke 13, and comprises interlaced tabs 25 and 26 on the side plates 11 and 12 for engagement with the end of the shank of the worm 19. As shown in Figures 4 and 5 the said end of the shank has the form of a head 27 which is held captive between the yoke 13 and the tabs 25 and 26 while permitting free rotation of the worm 19. Thus I provide an extremely simple and effective means for limiting axial movement of the worm 19 and the pulley 21.

Also, in accordance with the invention, I provide a novel, improved and simplified cord guide for confining the pendant strands 28 and 29 of a cord 30, Figure 1, which is reeved over the pulley 21 and which may be advantageously formed from a piece of sheet metal by blanking and stamping or forming operations, thus providing for a desirable economy in its manufacture. At the same time, the guide closely confines the pendant strands 28 and 29, thereby to effectuate a smooth action of the tilter and to reduce to a minimum attrition and wear of the cord 30.

As shown, the cord guide comprises a base portion 31 having an aperture 32 to receive a rivet 33 by which it may be secured to the underside of the U-shaped yoke 13. From the plate 31 there extends a depending wall 32 terminating in a generally flat bottom 33 which is located directly under the pulley 21. The bottom 33 has laterally extended wings 34 and also has upwardly extended fingers 35 located adjacent the bases and in front of the wings 34. Preferably the fingers 35 are formed in the shape of hooks, Figure 1, to present smooth or rounded outer surfaces for engagement with the pendant strands 28 and 29.

The cord guide member has an upwardly extending wall 36 joined to the bottom 33 at a point between and in front of the fingers 35, and said upwardly extending wall has oppositely extended angle-shaped extensions 37 having portions substantially opposite to and spaced from the wings 34 and the fingers 35. Each extension 37 has a front wall portion 38 and a side wall portion 39, the latter having upwardly and outwardly extended tabs 40. Preferably, as shown in Figure 6, the lower edges of the portions 38 and 39 have an outward flare 41 to prevent the said edges from cutting or abrading the pendant strands 28 and 29 of the cord 30.

It will be observed that the fingers 35 together with the front wall portions 38 and the side wall portions 39 of the angle-shaped extensions 37 are so arranged as to extend across the front and two sides of the pendant strings, and that the wings 34 extend across the back of the pendant strings. During the normal operation of the tilter, the pendant strings are held forwardly of the pulley 21 so that the strings will engage only the fingers 35 and/or the angle-shaped extensions 37, and will not engage the wings 34. This is made possible by the extensions and the fingers present smooth, rounded surfaces to the cord 30, devoid of sharp edges, there is no appreciable wear of the cord during the use of the tilter.

It will be observed that the upwardly extended portions 38 do not come into engagement with the pendant strings 28 and 29 because these strings are held away from the upper edges by virtue of their passing over the pulley 21.

Referring to Figure 2 the side wall portions 39 of the cord guide have their lower rear corners cut away, leaving a space indicated by the numeral 42, and this facilitates the assembage of the cord 30 to the tilter 10.

I have provided by the above construction an extremely simple and reliable tilter mechanism for a Venetian blind, and one which may be manufactured economically in large quantities. The cord guide of the tilter is in the form of a simple metal stamping, and is sturdy and reliable for the purpose set forth. The guide closely confines the
pendant strings 28 and 29 and prevents their running off the pulley 21, and also provides for a minimum of wear of the tilter cord.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. In a Venetian blind tilter, a cord guide comprising a sheet metal member having a substantially flat bottom provided with flat oppositely extended wings lying in the same plane as the bottom and provided with upstanding oppositely disposed fingers adjacent the bases and in front of said wings, said member having a vertical upwardly extending wall joined to said bottom at a point between and in front of said fingers, said vertical wall having oppositely laterally extended angle-shaped extensions having portions substantially opposite to and spaced from said wings and fingers, said angle-shaped extensions and fingers being engageable with the pendant strings of a cord reeved over a wheel disposed above said bottom, thereby to guide said strings.

2. A Venetian blind tilter comprising a bracket; a tilter pulley rotatably carried by the bracket; and a cord guide secured to the bracket and disposed below said pulley, said cord guide comprising a member having a substantially flat bottom located under the pulley, provided with flat, oppositely extended wings lying in the same plane as the bottom and provided with upstanding oppositely disposed fingers adjacent the bases and in front of said wings, said member having a vertical upwardly extending wall joined to said bottom at a point between and in front of said fingers, said vertical wall having oppositely laterally extended angle-shaped extensions having portions substantially opposite to and spaced from said wings and fingers, said angle-shaped extensions and fingers being engageable with the pendant strings of a cord reeved over a wheel disposed above said bottom, thereby to guide said strings.

3. In a Venetian blind tilter, a cord guide comprising a sheet metal member having a substantially flat bottom provided with oppositely laterally extended wings and provided with upstanding oppositely disposed fingers adjacent the bases and in front of said wings, said member having an upwardly extending wall joined to said bottom at a point between and in front of said fingers, said wall having oppositely laterally extended angle-shaped extensions having portions substantially opposite to and spaced from said wings and fingers, said angle-shaped extensions and fingers being engageable with the pendant strings of a cord reeved over a wheel disposed above said bottom, thereby to guide said strings.

4. The invention as defined in claim 3 in which the upstanding fingers are hook-shaped and present rounded surfaces to the pendant cords.

5. The invention as defined in claim 3 in which the lower edge portions of the angle-shaped extensions are flared to present rounded surfaces to the pendant cords.

6. The invention as defined in claim 2 in which the angle-shaped extensions have upwardly extended portions bent to be directed angularly outwardly, said portions being spaced from the periphery of the pulley and extending along a part of said periphery.

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