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TAPE ROLL FOR VENETIAN BLINDS

Filed Dec. 3, 1951

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AGENT
TAPE ROLL FOR VENETIAN BLINDS

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Application December 3, 1951, Serial No. 259,667

1 Claim. (Cl. 160—177)

The invention relates generally to Venetian blind hardware and particularly to an improved means for connecting Venetian blind tapes to the tilting mechanism usually mounted in a headrail from which the blinds are hung.

It is customary to mount the Venetian blind slats on ladders comprising a pair of vertical spaced tapes connected at intervals by cross-members or rungs which support the slats, and to attach the upper ends of the spaced ladder tapes to an oscillatable bar or tilt rod which holds the tapes apart so that when the bar is oscillated, the ladder rungs and their associated slats will be tilted. To facilitate assembly and dis-assembly of the Venetian blinds without special tools or equipment, it is desirable that instead of securing the ladder tapes directly to the tilt bar, they be attached to an intermediate member known as a tape roll which can be mounted on a tilt bar of reduced size and weight.

A major object of this invention is to provide an improved tape roll which can be stamped from sheet stock and then formed to the desired shape, thus materially reducing the cost of manufacture by obviating the labor which would be required to assemble a device of several pieces, the roll being formed in such manner that it can be mounted on and secured to a tilt bar without the necessity of employing auxiliary securing or fastening means thus further saving labor and time in assembling the blinds preparatory to hanging.

Another object of the invention is to provide a tape roll that will insure the ladder tapes being held in substantially uniform spaced relation in all operating positions thereof to thereby secure a uniform appearance of the blinds.

A further object of the invention is the provision of a self-locking tape roll which is frictionally secured to the tilt rod by its inherent resilience tending to resist displacement or distortion.

An additional object of the invention is to provide a tape roll to which the ladder tape can be quickly and easily attached and detached with a minimum of time and effort either before or after the roll is mounted on the tilt bar.

These and other objects and advantages of the invention will become apparent from the following specification and the accompanying drawings in which:

Fig. 1 is a perspective view partially broken away showing a channel-type headrail having brackets therein supporting a tilt bar on which the tape roll with the tapes attached is mounted;

Fig. 2 is a perspective view of the tape roll alone;

Fig. 3 is an elevational view of the left end of the roll of Fig. 2 taken as indicated by the arrow 3;

Fig. 4 is an elevational view of the right-end of the tape roll of Fig. 2 taken as indicated by the arrow 4; and

Fig. 5 is an end elevation of the tape roll mounted on the tilt bar illustrating the torsional displacement of the parts.

Referring now to the drawing and particularly Fig. 1 thereof, the numeral 10 designates a channel-type headrail of conventional design having the upper edges of its side walls rolled to give increased stiffness. A support bracket 11 is mounted in the headrail 10 by wedging its upper and lower ends between the edge roll of the side wall and the bottom of the headrail. The bracket 11 supports a tilt rod 12 of square cross-section with its corners slightly beveled or rounded to facilitate its rolling about its longitudinal axis in the bearing of the bracket 11, a tab 13 being provided to restrict vertical motion of the rod. These members form no part of the invention but are illustrative of the environment thereof. The numerals 14 and 15 designate opposed tapes which have cross members (not shown) to form a standard Venetian blind ladder.

The bottom wall of the headrail 10 is provided with longitudinal slots (not shown) for passage of the tapes therethrough.

As seen best in Fig. 2 the tape roll is formed from a blank having a generally rectangular central section, the center portion of which forms a base plate 13 which provides a horizontal tape-receiving surface with upstruck fingers to be described in detail later. The opposite ends of the blank are slotted and bent downwardly at substantially 90° to the base plate 19. The end seen in Fig. 2, indicated generally by the numeral 18, comprises a horizontal bridge portion 21 and downwardly extending spaced legs 22 and 23 forming a rectangular downwardly facing notch 25 therebetween.

The other end of the blank from which the roll is formed, i.e., the left end in Fig. 2, is similarly bent down to form an inverted U-shaped arch 30 comprising a horizontal bridge portion 31 and depending legs 32 and 33 defining a rectangular notch 35 therebetween. The notches 25 and 35 are just large enough to permit the ends 20 and 30 to slip over the tilt rod 12 with their respective pairs of legs in sliding engagement with the sides of the rods, the bridges 21 and 31 being adapted to seat on the upper face of the rod. While the slots 25 and 35 are each rectangular and of the same dimensions, they are not similarly positioned.

As seen in Fig. 3, the slot 35 formed in the left
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end section 30 is uniformly aligned with the vertical axis of the tape roll, the legs 32 and 33 being equidistant from said axis.

Referring now to Fig. 2 and to Fig. 4, it is seen that the notch 25 is cut on the bias with respect to the vertical axis of the device, the legs 22 and 23 tapering to the left as seen in best Fig. 4. In other words, the width of leg 22 decreases from top to bottom, while the width of leg 23 increases in said direction. The visible portions of left-hand leg 33 is indicated in full lines in Fig. 4, while the inner edge of the left-hand leg 32 is indicated in dotted lines. As is apparent from Fig. 4, the right-hand slot 25 is thus angularly and laterally displaced with respect to the two lateral ends 33, its three sides formed by the inner faces of the bridge 21 and legs 22 and 23 all being biased with respect to the corresponding members of left-hand 30. It has been found that a bias of 4° is very satisfactory for medium gauge stock usually used for Venetian blind hardware of this type.

Formed as extensions of the elongated sides of the base plate 19 are curved side plates 26 and 27 which are preferably formed as cylindrical portions extending from the plate 19 down to a point just below the outer corners of their immediately adjacent end legs. It will be apparent that by curving the side walls 26 and 27 in the manner described, the tape 14 and 15 attached thereto will be spaced a substantially constant distance through all operative positions of the roll and tilt bar, and the device is given increased rigidity throughout.

Returning now to the ends 29 and 30, it will be remembered that slot 25 is biased and therefore displaced with respect to slot 35. Consequently, in order to mount the tape roll on a tilt rod 12, it is necessary to twist or torsionally distort the roll about its longitudinal axis to thereby align slots 25 and 35 with themselves and with the vertical sides of the tilt rod 12. In practice, this is accomplished by partially inserting the tilt rod in one of the slots and then twisting the entire device to align the other slot with the rod, whereupon the device is pushed down until the bridges 21 and 31 engage the top face of the rod. The torsional strain thus produced in the roll form is considerable and results in strong frictional engagement by oppositely positioned legs 22 and 32 with their respective sides of the tilt rod, since the stressed base plate 19 and side walls 26 and 27 tend of course to resume their normal unstressed positions. It has been found that using even relatively thin gauge aluminum plate to form the device, the torsional force is sufficient to provide an excellent frictional gripping action between the end legs and the tilt bar. However, the friction is not so great as to prevent the tape roll from being easily removed from the tilt rod by exerting an upward pull thereon.

By means of the torsionally produced friction grip hereinabove described, it is possible to dispense with all auxiliary fastening means such as have been heretofore used. Furthermore, longitudinal adjustment of the tape roll along the tilt rod is readily attained without the necessity of loosening any securing means or modifying the structure in any way, all that is needed being to slide the roll along the rod to the required position where it will be firmly held by its own self-locking characteristics.

As previously mentioned, a pair of tape-holding fingers is provided for each of the tapes, the fingers being preferably reversed in position as seen in Fig. 2. For holding tape 14, fingers 28 and 29 are provided, while corresponding fingers 38 and 39 secure tape 15 in place. As mentioned, the fingers are struck from the base plate 19, fingers 28 and 38 being considerably longer than fingers 29 and 39, but all fingers being substantially parallel to plate 19. The opposed ends of the fingers of each pair are spaced apart to facilitate insertion of the roll under a long finger and then by folding the tape the insertion of the other edge thereof under the small finger. The tapes are then bent back on themselves as seen best in Fig. 3 with the loose end being on the inside and resting against the outer face of its respective side wall. If desired, loops can be formed in the tapes and slipped over the respective fingers.

It will be understood that a separate tape roll is provided for each pair of ladder tapes, two being sufficient for narrow blinds with additional ladders and rolls being provided when the slats are longer.

From the foregoing, it is seen that the tape roll is adapted to hold the ladder tapes in uniformly spaced position through all operative positions thereof and that it can be readily mounted on and removed from the tilt rod by merely twisting the roll to align the end slots with the side walls of the rod.

While the presently preferred form of the invention illustrated herein is fully capable of achieving the objects and advantages heretofore stated, it will be understood that modifications and variations of the invention can be made within the scope of the appended claim.

I claim:

A device for mounting a Venetian blind ladder tape on a tilt rod of non-circular cross section with at least two parallel faces, said device comprising a resilient sheet metal body having a flat portion on the top side thereof extending longitudinally of said tilt rod, said flat portion having downwardly bent extensions at its opposite ends with slots formed in said ends which are angularly displaced with respect to one another, whereby said body must be torsionally deformed to allow said slots to simultaneously engage said tilt rod, said device being pressed down onto said tilt rod from above to engage said tilt rod in said slots, one edge of each of said slots being resiliently pressed against said parallel faces of said tilt rod by the torsional strain in said body to frictionally resist removal therefrom, and means on said flat portion for securing said ladder tape thereto.

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References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,141,502</td>
<td>Ajoulo</td>
<td>Dec. 27, 1938</td>
</tr>
<tr>
<td>2,534,080</td>
<td>Stuber</td>
<td>Dec. 11, 1950</td>
</tr>
<tr>
<td>2,699,846</td>
<td>Nelson</td>
<td>Mar. 18, 1952</td>
</tr>
<tr>
<td>2,620,287</td>
<td>Rosenheim</td>
<td>Dec. 9, 1952</td>
</tr>
</tbody>
</table>