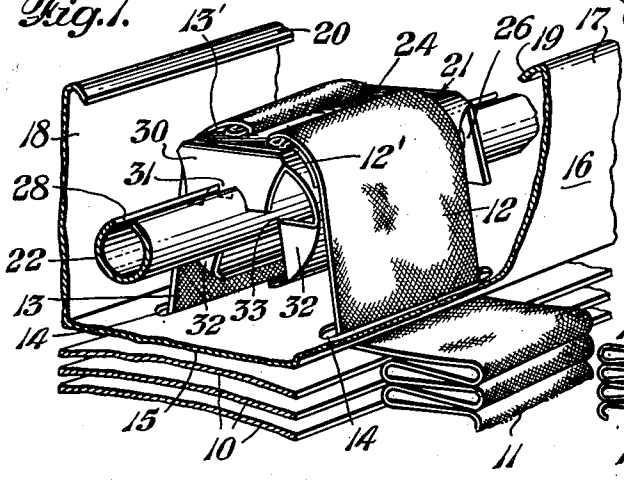
Dec. 9, 1952 H. S. ROSENBAUM 2,620,868

TILT BAR TAPE HOLDER

Filed March 27, 1951

Fig. 1.



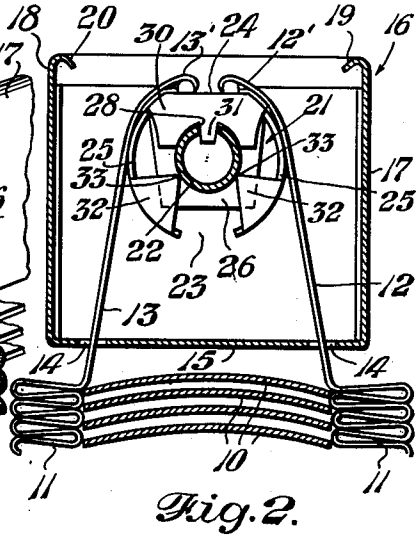
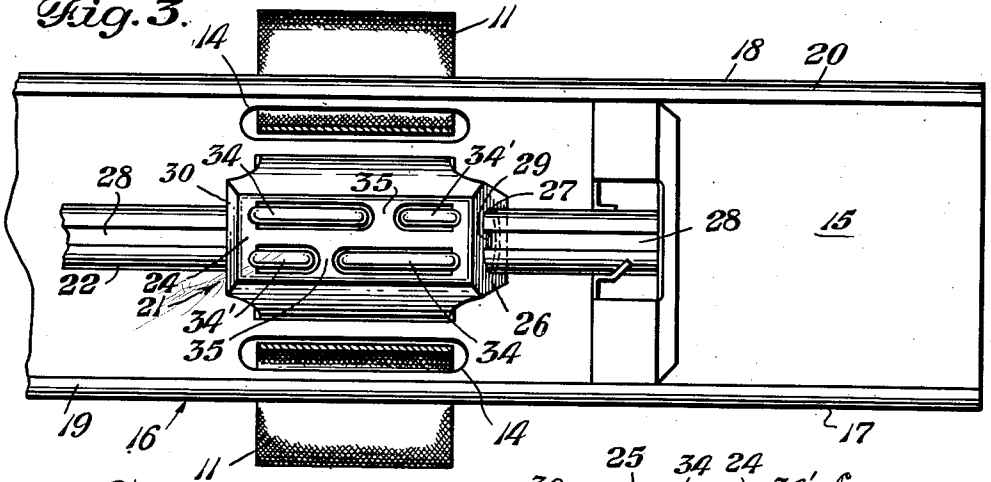
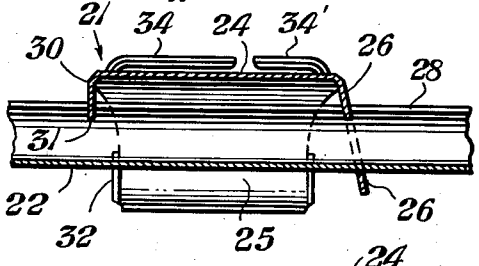


Fig. 2.

Fig. 3.





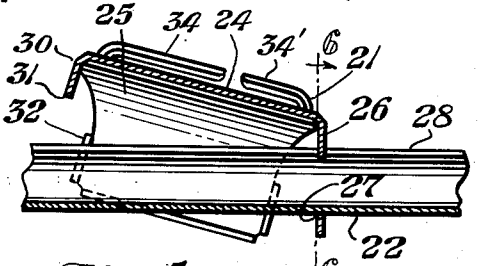


Fig. 5.

Fig. 4.

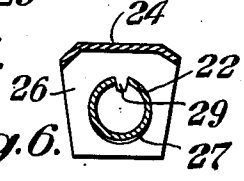


Fig. 6.

INVENTOR

Harry S. Rosenbaum

BY Flocks and Simon

ATTORNEYS

Patented Dec. 9, 1952

2,620,868

UNITED STATES PATENT OFFICE

2,620,868

TILT BAR TAPE HOLDER

Harry S. Rosenbaum, Baltimore, Md., assignor to The Eastern Venetian Blind Company, Baltimore, Md., a corporation of Maryland

Application March 27, 1951, Serial No. 217,761

6 Claims. (Cl. 160—177)

1

The present invention relates to tape holders or rockers for Venetian blinds, and more particularly to a holder or rocker for securing the upper ends of the tape ladders to the tilting mechanism for tilting the slats of Venetian blinds.

In Venetian blinds of the so-called enclosed head bar type, the head bar is provided with a tilt shaft or rod. This is an oscillatory shaft or rod which extends lengthwise within the head bar and which has mounted thereon two or more tape holders or rockers. To each holder there is attached the front and rear upper ends of one of the vertical tapes of the blind. Thus, rotary movement imparted to the shaft or rod is effective to tilt the slats of the blind, as is well understood in the art.

In the prior structures proposed, it is customary for the tape holder to be provided with a pair of openings therethrough for passage of the tilt shaft. In most prior types of enclosed head bar, the tilt shaft is of non-circular cross section and is inserted through the holes in the holder which are of corresponding shape. Since the tilt rod is usually cut from cold rolled steel stock of the proper nominal size and cross section, there is apt to be considerable angular lost motion between the tilt shaft and the tape rockers. Further, much difficulty is experienced in sliding the tape holder along the tilt shaft to the proper position thereon. The tape holder has the tendency to bind on the tilt shaft and the holder must be jiggled up and down and from side to side to adjust the holder to its proper position on the rod. Further, when the proper position has been reached on the rod, additional structure is necessary on the holder to prevent further axial sliding movement of the tape holder on the tilt shaft.

It is an object of the present invention to provide a one-piece tape holder which can be formed from a strip of flat sheet metal readily and inexpensively as a sheet metal stamping.

It is a further object of the present invention to provide a tape holder which can be readily slid along the tilt shaft to proper position without binding.

It is a still further object of the present invention to provide an improved tape holder which can be easily snapped into position at the proper location.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a fragmentary perspective view of a portion of a Venetian blind illustrating the improved tape holder.

2

Fig. 2 is an end view thereof.

Fig. 3 is a plan view thereof.

Fig. 4 is a longitudinal section of the tape holder attached to the tilt shaft;

Fig. 5 is a longitudinal section of the tape holder and tilt shaft before the former has been snapped onto the latter; and

Fig. 6 is a sectional view taken along the line 6—6 of Figure 5.

Referring to the drawings, a portion of a Venetian blind is illustrated including a plurality of slats 10 suitably supported upon tape ladders indicated generally at 11, each of the tape ladders comprising a pair of vertically extending tapes 12 and 13, between which extend a plurality of cross bars upon which the slats 10 rest, as is conventional in the construction of Venetian blinds. The upper ends of the tapes 12 and 13 extend upwardly through openings 14 in the bottom wall 15 of a head bar 16, which, as illustrated herein, is formed as a U-shaped channel member made of sheet metal. The upper ends of the side walls 17 and 18 of the channel member are turned inwardly as indicated at 19 and 20 to form a substantially box-like structure in which the tilting mechanism, pulleys, cord locks and other apparatus required for the manipulation of the blind may be housed. The head bar is adapted to be mounted underneath the head jamb of a window frame in any suitable way as by the use of endmost supporting brackets of suitable construction, not shown. The operating cords for lifting and lowering the blind extend through openings in the bottom wall of the head bar and through slots in the several slats. The cords are secured through openings in the bottom bar. For clarity, the operating cords have been omitted from the drawing.

The upper ends of each of the tapes 12 and 13 are looped at 12' and 13' for attachment to the tape holder or rocker indicated generally at 21. This tape holder or rocker 21 is the subject of the present invention. It should be understood that at least two ladder tapes and tape holders are used in each blind assembly even though only one is illustrated. The tape holder 21 is attached to a tilt shaft or rod 22 operated by a tilter mechanism, not shown, which oscillates the shaft so as to effect a corresponding oscillation of the tape holder with the consequent tilting of the slats of the blind.

The tape holder 21 is formed from a strip of sheet metal bent transversely at the central por-

tion into a generally U-shaped cross section as best shown in Fig. 2, having an opening 23 at the bottom extending substantially the entire length of the holder. The top of the tape holder 21 is flattened the entire length of the holder as shown at 24. The central portion of the tape holder will thus be seen to include a flattened top portion 24 and two curved leg portions 25 extending downwardly therefrom and curved toward one another at the lower end.

An extension 26 is provided to the flattened top portion 24 at one end of the tape holder. Extension 26 has an opening 27 therein which is substantially the same width as the diameter of the tilting shaft 22; however, it is somewhat larger than the diameter of the shaft, as shown in Fig. 6. This results in an elliptical-shaped opening. In the accompanying drawing the tilting shaft 22 is shown as being a hollow metal tube having a longitudinally extending slot 28 at the upper end thereof. The opening 27 in the extension 26 is provided with a projection 29 extending downwardly into the opening which is adapted to fit into the slot 28 of the shaft 22 when it is inserted therein to prevent relative rotation of the holder 21 with respect to the shaft 22. The extension 26 is bent downwardly with respect to the flattened portion 24 through an angle somewhat less than 90°. An extension 30 to the flattened top portion 24 is provided at the other end of the tape holder. Extension 30 which is bent downwardly through an angle of 90° is provided with a depending projection 31 at the center thereof adapted to engage with the slot 28 in the tilting shaft. Any suitable means in addition to the slot 28 may be provided on the tilt shaft to engage with the projections 29 and 31. For example, a solid shaft could be used having a groove extending the length thereof adapted to receive the projections 29 and 31. The projections 29 and 31 are tapered so that as the tape holder is snapped onto the tilt shaft, the projections enter the slot in the shaft, and due to the tapered shapes of the projections, all the clearance between the projections and the slot is taken up. Thus, as the tilt shaft is oscillated, the tape holder will likewise oscillate without lost motion due to the interengaging tapered projections 29 and 31 in the tape holder and slot 28 in the tilt shaft.

Each of the curved leg portions 25 is provided with an extension 32 at the front end thereof adjacent the extension 30 near the lower portion which is bent inwardly at a 90° angle. The extensions 32 are pointed as at 33. The distance between adjacent points 33 of extensions 32 is somewhat less than the diameter of the tilt shaft 22. In this manner, when the tape holder is placed on the tilt shaft so that the tilt shaft extends through opening 27 in extension 26 of the holder, the tilt shaft can enter the opening 23 in the end of the holder but will not pass the points 33 until sufficient pressure is exerted to force the curved legs 25 apart so that the shaft will pass between the points. The resilience of the metal of the tape holder permits the necessary outward movement of the two curved legs thereof to permit the shaft to pass through, after which the legs tend to snap back to their original position so that the points engage the shaft tightly. The points 33 are suitably spaced from the projection 31 so that when the projection has engaged the slot 28 in the tilt shaft 22 the points 33 will engage the outer surface of the shaft 22 below the center thereof. The points 33 thus serve the function of retaining the tape holder in position since the points engage the shaft tightly due to the resilience of the metal to prevent axial movement of the holder with respect to the shaft. The extension 26, as stated previously, is bent at an angle of less than 90° to the flattened top portion of the holder. Thus, when the tilt shaft passes through the opening 27 in extension 26, the holder first assumes the position shown in Fig. 5 wherein the extension 26 is perpendicular to the longitudinal axis of the shaft and the holder may easily be slid along the shaft to the desired position since the opening in the extension is somewhat larger than the diameter of the shaft. At this point, the opposite end of the holder is forced downwardly until the points 33 pass over the widest portion of the shaft 22 and the holder assumes the position illustrated in Fig. 4. The extension 26 is now at an angle of less than 90° with respect to the shaft and the opening 27 in extension 26 tends to engage the shaft somewhat like a brake to prevent axial movement of the holder along the shaft. The rotation of the holder transverse to the axis thereof causes the opening to assume an angle with respect to the shaft whereby the shaft is gripped by the opening.

The flattened portion 24 of the tape holder has a plurality of fingers 34, 34' struck upwardly therefrom and in parallel relationship as best shown in Fig. 3 to retain the tape loops. As illustrated, two rows of fingers are provided, one row for each tape. Each row is provided with a relatively long finger 34 extending inwardly from a point near one end of the holder, and a shorter finger 34' extending inwardly from a point near the other end of the holder. A space 35 is provided between each pair of fingers 34, 34' to enable the tape to be attached. The rows of fingers of the adjacent row are shown as being reversed with respect to the fingers on the other row, the long finger 34 of one row being adjacent the short finger 34' of the other row. Any suitable tape retaining means can be substituted for the fingers described above.

To assemble the device, the tilting shaft is inserted through the opening 27 in each of the required number of tape holders with the projection 29 of the holder in engagement with the slot 28 in the shaft. The tape holders are slid along the shaft to the required position with the tape holders in the position so that the end of the tape holder opposite from the extension 26 is out of contact with the shaft. When the correct position has been reached, the tape holder is forced downwardly at the end opposite from extension 26 until it has snapped into place and the projection 31 of extension 30 has passed into the slot 28 in the tilting shaft and the points 33 have been brought into engagement with the outer surface of the shaft at points below its widest portion. The tapes 12, 13 can now be attached to the holder. They are first inserted through the openings 14 in the bottom wall 15 of the head bar. Each tape end is looped over and secured to the tape by a seam or a staple or the like to form the loops 12', 13' respectively in the end thereof. One side of each loop is inserted into the space 35 between the fingers and thence around the longer finger 34. The tape is bent and the other side of the loop is then inserted around the shorter finger 34'. The tapes are thus secured to the tape holder in such a manner that they can be readily removed when de-

sired, and while attached thereto will oscillate with the tape holder and tilting shaft.

It will be apparent from the foregoing that once the tape holder is assembled onto the tilting shaft with the tapes attached as described, rotation of the shaft **22** will rotate the tape holder, elevating one of the tape ends while lowering the other of the tape ends to produce the slat tilting action desired in the Venetian blind assembly.

It will also be noted that by employing the construction for the tape holder as described herein, this member may be readily and inexpensively manufactured from a single stamping of sheet metal at a minimum of expense for materials and labor, in addition to the ease with which the assembly of the tape holder onto the tilting shaft may be accomplished to assemble the holder and tapes in place upon the blind. The tape holder will retain the tape ends in a simple manner, oscillate with the tilt shaft without lost motion, and will retain its position on the tilt shaft without sliding axially thereof.

It will be obvious to those skilled in the art that various changes may be made without departing from the spirit of the invention and the invention is not limited to what is shown in the drawings and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. In a Venetian blind, a tilting shaft, a tape holder, said tape holder having two ends, one end of which has an extension thereon with an opening therethrough adapted to receive said tilting shaft, and the other end of which is of generally U-shaped cross-section wherein the two legs of the U are resilient and adapted to snap over said tilting shaft, and engaging means on said shaft and said holder to permit concomitant rotation of said holder with said shaft.

2. In a device in accordance with claim 1, wherein said opening in the extension at the one end of said holder adapted to receive said tilting shaft is elliptical-shaped and said extension is mounted at an angle of less than 90° to said shaft when said holder has been snapped onto the shaft.

3. In a tape holder for tilting mechanisms of Venetian blinds including a tilting shaft, a holder member having two ends, one end of which has an extension thereon with an opening therethrough adapted to receive said tilting shaft, and the other end of which is of generally U-shaped cross-section wherein the two legs of the U are resilient and adapted to snap over said tilting shaft, and engaging means on said shaft and said holder to permit concomitant rotation of said holder with said shaft.

4. In a device in accordance with claim 3, wherein said opening in the extension at the one end of said holder adapted to receive said tilting shaft is elliptical-shaped and said extension is mounted at an angle of less than 90° to said shaft when said holder has been snapped onto the shaft.

5. In a tape holder for tilting mechanisms of Venetian blinds including a tilting shaft, a holder member of generally U-shaped cross section including a flattened top portion and two curved legs depending from the sides of said flattened portion, a first extension depending from one end of said flattened portion, an opening in said first extension adapted to receive said tilting shaft, a second extension depending from the other end of said flattened portion adapted to engage with said tilting shaft to provide for concomitant rotation of said holder with said shaft, and an adjacent pointed projection extending inwardly from the end of each of said curved legs adjacent said second extension adapted to engage said tilting shaft on opposite sides thereof below the center thereof to retain said holder in position on said shaft, said adjacent pointed projections being spaced apart a distance less than the diameter of said tilting shaft whereby said curved legs must be spread apart to enable the other end of said holder to snap onto said tilting shaft which passes through said opening in said first extension at the one end of said holder.

6. In a tape holder in accordance with claim 5, wherein said first extension depends from said flattened portion at an angle of less than 90° thereto and wherein the opening in said first extension is elliptical-shaped.

HARRY S. ROSENBAUM.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,141,502	Ajouelo	Dec. 27, 1938
2,534,080	Stuber	Dec. 12, 1950
2,589,846	Nelson	Mar. 18, 1952