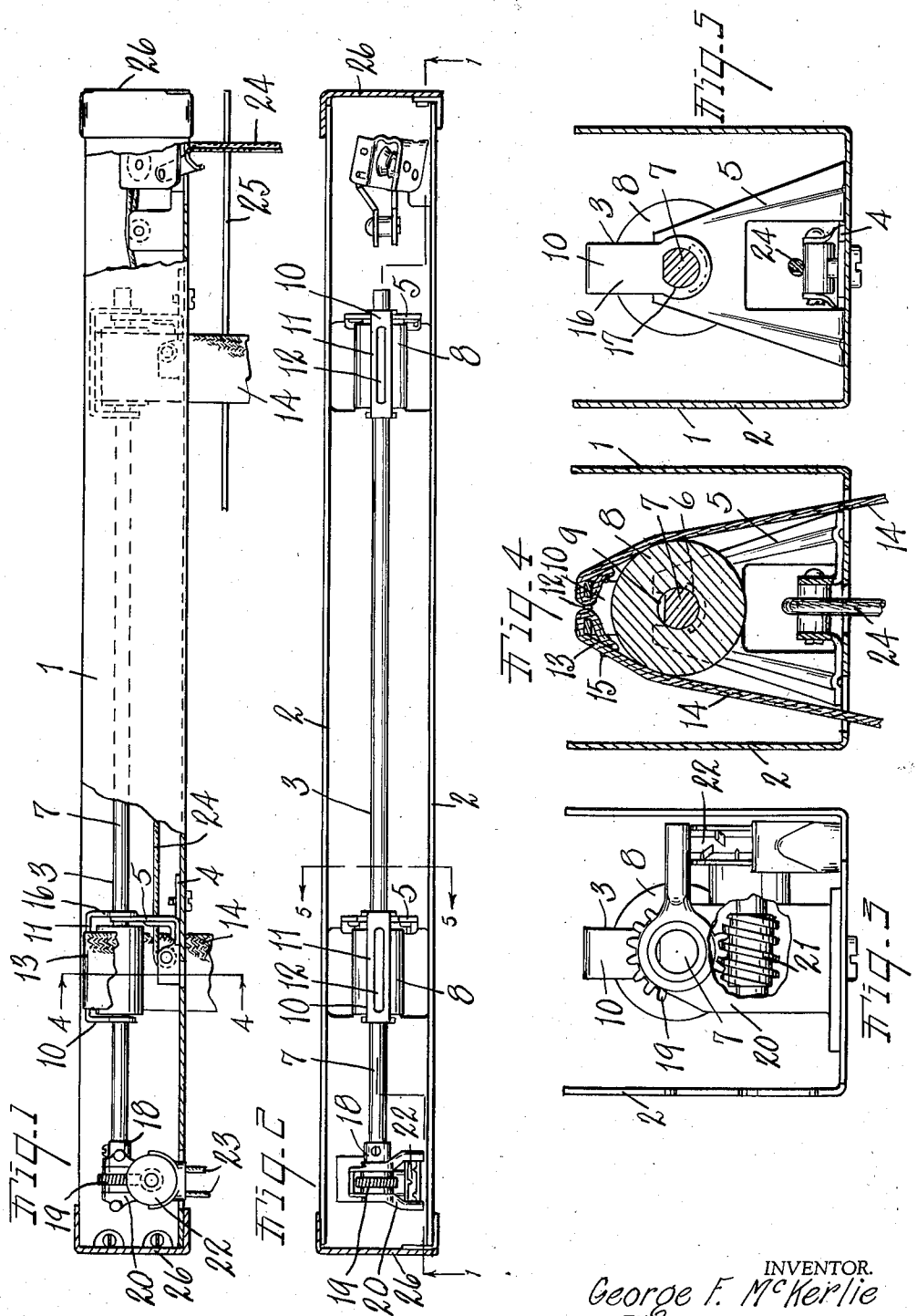
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VENETIAN BLIND TILT MECHANISM

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VENETIAN BLIND TILT MECHANISM

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This invention relates to improvements in Venetian blind tilt mechanisms.

This invention relates to Venetian blinds and particularly to the tilting mechanism. It has for its objects:

First, to provide a new and improved tilting mechanism for Venetian blinds which may be either disposed in a sheet metal casing or may be mounted on a conventional head member.

Second, to provide such a tilting mechanism which is simple in construction and which can be produced economically primarily as metal stampings.

Third, to provide such a mechanism which can be easily assembled or disassembled.

Fourth, to provide such a mechanism which operates most effectively to completely close the slats of a Venetian blind when they are tilted to closed position.

Further objects and advantages pertaining to details and economies of construction and operation will appear from the description to follow. The invention is defined in the claims. A preferred embodiment of my invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevational view of the top portion of a Venetian blind embodying my improved tilting mechanism, partly in section on line 1—1 of Fig. 2.

Fig. 2 is a top elevational view of the mechanism shown in Fig. 1.

Fig. 3 is a view of the left end of the tilting mechanism shown in Fig. 1.

Fig. 4 is a detail sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a detail sectional view taken on line 5—5 of Fig. 2.

For the purposes of illustrating my invention, I have shown a Venetian blind head construction 1, which consists of a channel shaped sheet metal head member 2 in which the tilting mechanism indicated generally at 3 is disposed. This tilting mechanism consists of supporting brackets 4 which are made as sheet metal stampings and each of which has a single upstanding web 5 which is apertured at 6 to slidably and rotatably receive and support a square of D-shaped shaft 7. A roller 8 which is preferably of wood provided with a central axial aperture 9 is loosely fitted on the shaft 7 for rotation thereon. Since the shaft 7 is of substantially uniform diameter throughout its length, this roller may be slid along the shaft to its operative position adjacent the upstanding web 5 of the bracket 4.

In the preferred form of the invention, the aperture 6 of the web 5 opens to the top thereof and is of general key-hole shape, so as to serve to retain the D-shaped bar 7 in position when the D-bar rests in the position shown in Figs. 3, 4 and 5 with its flattened side upward. The opening to the top of the web 5 is wide enough, however, to permit the D-bar, when it is turned 90° in a clockwise direction as viewed in Fig. 4, to be snapped upwardly out through the opening at the top of the aperture 6.

The tilt member 10 is formed of a strip of sheet metal bent to a U-shape. The central portion 11 thereof is provided with a slot 12 through which the ends 13 of the ladder tapes 14 may be passed to be fastened with a fastening element 15. The ends of the legs 16 of the tilt member 10 are provided with squared or D-shaped openings 17 which slidably fit the shaft 7 in non-rotative engagement so that rotation of the shaft 7 will swing the tilting member from side to side. The central portion 11 of the tilting member clears the roller 8 which serves as a spacing roller for the ladder tapes 14.

The rod 7 extends into and is fixed in a hub 18 of a worm wheel 19 mounted in a bracket 20 in which a worm 21 is mounted in engagement with the worm wheel 19. The worm 21 is rotated by a suitable pulley 22 which is operated in a conventional manner by depending cords 23.

The blind is provided also with the usual lift cords 24 which raise the slats 25 in a conventional manner. The blind is supported by suitable brackets 26.

The tilt mechanism which I have provided is extremely simple in construction since both the supporting bracket 4 and the tilting member 10 can be made as sheet metal stampings. They can be easily assembled by merely sliding the rod 7 through the parts in their assembled arrangement and the roller 8 and the tilt member 10 are all held in assembled position merely by the insertion of the rod 7 without the necessity for other fastening means.

In the preferred form of the mechanism, the assembly is very simple because the tilting members 10 and the rollers 8 may be assembled on the D-bar. The D-bar is then turned with its flat side in a position 90° in a clockwise direction from that shown in Fig. 4 and is snapped into the aperture 6 of the web 5, the web being inserted between the roller 8 and the tilt member 10. This greatly simplifies the assembly of the tilt mechanism since after the rod 7 has been snapped into position it can be moved longitudinally so that its end will fit into the worm wheel

as is shown in Figs. 1 and 2 in the fully assembled blind.

The mechanism is very easily operated and the provision of the roller 8 which has a diameter smaller than the length of the legs 16 of the tilting member provides for extremely desirable closing characteristics when the slats are tilted to closed position. The slats close much more uniformly than with conventional tilting mechanisms.

I have described one form only of my invention, but it will be apparent that other forms can be provided. The terms and expressions which have been herein employed are used as terms of description and not of limitation. There is no intention in the use of these terms and expressions of excluding any equivalents of the features shown and described or portions thereof. It is recognized that various modifications are possible within the scope of the invention claimed.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a Venetian blind tilt mechanism, a squared tilt shaft of substantially uniform cross section, a supporting bracket having a single upstanding sheet metal web apertured to slidably receive and rotatably support said shaft, a ladder tape spacing roller axially apertured to slidably receive said shaft and be rotatably supported adjacent said web thereby, a U-shaped sheet metal tilt member embracing said roller and said web with its central portion clearing said roller and having ladder tape engaging means thereon and having squared apertures in the ends of its legs to slidably fit said shaft in non-rotative engagement, whereby rotation of said shaft will actuate said tilt member and whereby said tilt member and said roller will be kept in position axially.

2. In a Venetian blind tilt mechanism, a squared tilt shaft of substantially uniform cross section, a supporting bracket having a single upstanding web apertured to slidably receive and rotatably support said shaft, a ladder tape spacing roller axially apertured to slidably receive said shaft and be rotatably supported adjacent said web thereby, a U-shaped tilt member embracing said roller and said web with its central portion clearing said roller and having ladder tape engaging means thereon and having squared apertures in the ends of its legs to slidably fit said shaft in non-rotative engagement, whereby rotation of said shaft will actuate said tilt member and whereby said tilt member and said roller will be kept in position axially.

3. In a Venetian blind tilt mechanism, a squared tilt shaft of substantially uniform cross section, a supporting bracket having a single upstanding sheet metal web apertured to slidably receive and rotatably support said shaft, a ladder tape spacing roller axially apertured to slidably receive said shaft and be supported adjacent said web thereby, a U-shaped sheet metal tilt member embracing said roller and said web with its central portion clearing said roller and having ladder tape engaging means thereon and having squared apertures in the ends of its legs to slidably fit said shaft in non-rotative engagement, whereby rotation of said shaft will actuate said tilt member and whereby said tilt member and said roller will be kept in position axially.

4. In a Venetian blind tilt mechanism, a squared tilt shaft of substantially uniform cross section, a supporting bracket having a single upstanding web apertured to slidably receive and rotatably support said shaft, a ladder tape spacing roller axially apertured to slidably receive said shaft and be supported adjacent said web thereby, a U-shaped tilt member embracing said roller and said web with its central portion clearing said roller and having ladder tape engaging means thereon and having squared apertures in the ends of its legs to slidably fit said shaft in non-rotative engagement, whereby rotation of said shaft will actuate said tilt member and whereby said tilt member and said roller will be kept in position axially.

5. In a Venetian blind tilt mechanism, a squared tilt shaft of substantially uniform cross section, a supporting bracket apertured to slidably receive and rotatably support said shaft, a ladder tape spacing roller axially apertured to slidably receive said shaft and be rotatably supported adjacent said bracket thereby, a U-shaped tilt member embracing said roller and said bracket with its central portion clearing said roller and having ladder tape engaging means thereon and having squared apertures in the ends of its legs to slidably fit said shaft in non-rotative engagement, whereby rotation of said shaft will actuate said tilt member and whereby said tilt member and said roller will be kept in position axially.

6. In a Venetian blind tilt mechanism, a squared tilt shaft of substantially uniform cross section, a supporting bracket apertured to slidably receive and rotatably support said shaft, a ladder tape spacing roller axially apertured to slidably receive said shaft and be supported adjacent said bracket thereby, a U-shaped tilt member embracing said roller and said bracket with its central portion clearing said roller and having ladder tape engaging means thereon and having squared apertures in the ends of its legs to slidably fit said shaft in non-rotative engagement, whereby rotation of said shaft will actuate said tilt member and whereby said tilt member and said roller will be kept in position axially.

7. In a Venetian blind tilt mechanism, a tilt shaft, a ladder tape spacing roller rotatably mounted on said shaft, and a U-shaped tilt member embracing said roller with its central portion spaced therefrom and having means thereon to engage a tape ladder, and having the ends of its legs engaging said shaft in non-rotative relationship.

8. In a Venetian blind tilt mechanism, a tilt shaft, a ladder tape spacing roller mounted on said shaft and a U-shaped tilt member embracing said roller with its central portion spaced therefrom, and having means thereon to engage a tape ladder and having the ends of its legs engaging said shaft in non-rotative relationship.

9. In a Venetian blind tilt mechanism, a ladder tape spacing roller and a tilt member extending parallel with but beyond the periphery of said roller and having means for ladder tape attachment, and means for moving said tilt member about said roller.

10. In a Venetian blind tilt mechanism, a shaft having a D-shaped cross section, a supporting bracket therefor having an upstanding web having an aperture to rotatably receive and support said rod and having a narrowed portion opening to an edge of said web and of a width substantially the same as the narrowest dimension of said shaft, whereby said shaft can be slid into supported position through said narrowed portion of

said aperture, an axially apertured ladder tape spacing roller supported on said rod adjacent said web, and a U-shaped tilt member having its legs provided with D-shaped apertures to fit said shaft in non-rotative engagement and embracing said roller and said web and with its central portion clearing said roller and having ladder tape engaging means thereof whereby the tilt member and roller will be held in position axially of said rod by said web and whereby the rod with the tilt member and roller thereon may be easily removed from or placed in said aperture.

11. In a Venetian blind tilt mechanism, a shaft, a supporting bracket therefor having an upstanding web having an aperture to rotatably receive and support said rod and opening to an edge of said web whereby said shaft can be slid into supported position from the edge of said web, an axially apertured ladder tape spacing roller supported on said rod adjacent said web, and a U-shaped tilt member having its legs in non-rotative engagement with said shaft and embracing said roller and said web and with its central portion clearing said roller and having ladder tape engaging means thereon whereby the tilt member and roller will be held in position axially of said rod by said web and whereby the rod with the tilt member and roller thereon may be easily removed from or placed in said aperture.

12. In a Venetian blind tilt mechanism, a rod having a roller rotatably mounted thereon and having a U-shaped tilt member non-rotatably mounted thereon and embracing said roller and having its central portion clearing said roller and having ladder tape engaging means thereon, and a supporting bracket having an upwardly extending web adapted to be inserted between one end of said roller and said tilt member and having an aperture opening to the edge thereof to permit passage of said rod, whereby said roller and tilt member may be assembled on said rod and said rod may then be placed in supported relationship on said bracket by insertion into said aperture with said web lying between said roller and said tilt member.

13. In a Venetian blind tilt mechanism, a rod having a roller thereon and having a U-shaped tilt member non-rotatably mounted thereon and embracing said roller and having its central portion clearing said roller and having ladder tape engaging means thereon, and a supporting bracket having an upwardly extending web adapted to be inserted between one end of said roller and said tilt member and having an aperture opening to the edge thereof to permit passage of said rod whereby said roller and tilt member may be assembled on said rod and said rod may then be placed in supported relationship on said bracket by insertion into said aperture with said web lying between said roller and said tilt member.

14. In a Venetian blind tilt mechanism, a rod having a roller for ladder tape spacing means thereon and having a tilt member non-rotatably mounted thereon and embracing said roller and having its central portion clearing said roller and having ladder tape engaging means thereon, and a supporting bracket having an upwardly extending web adapted to be inserted between one end of said roller and said tilt member and having an aperture opening to the edge thereof to permit passage of said rod, whereby said roller and tilt member may be assembled on said rod and said rod may then be placed in supported relationship on said bracket by insertion into said aperture with said web lying between said roller and said tilt member.

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