July 9, 1940. H. C. LA GANKE 2,207,516

VENETIAN BLIND AND A SECURING DEVICE FOR THE CORD THEREOF

Filed Oct. 24, 1938

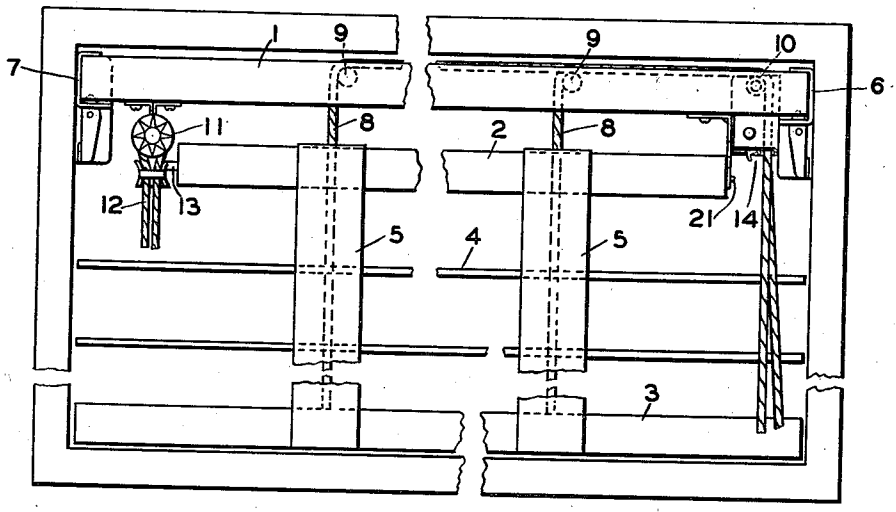


FIG.-1

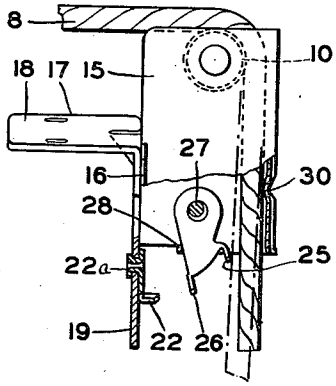


FIG.-2

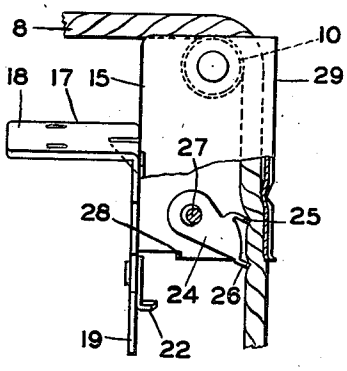


FIG.-3

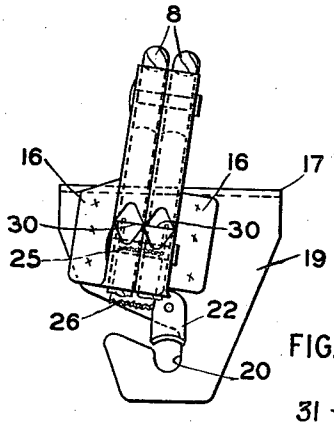


FIG.-4

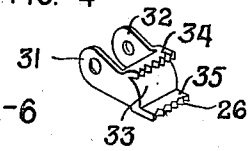


FIG.-6

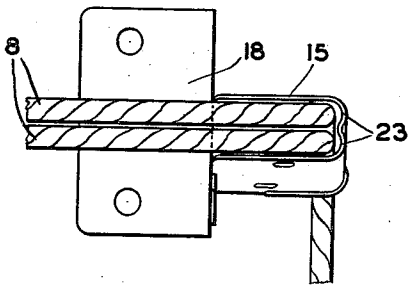


FIG.-5

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VENETIAN BLIND AND A SECURING DEVICE FOR THE CORD THEREOF

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8 Claims. (Cl. 24—134)

My invention relates to Venetian blinds and more particularly to improved means associated therewith for securing the slats of the blind at any desired position with respect to the window to which the blind is applied.

At the present time Venetian blinds are being extensively utilized in homes and well-appointed offices and it is, therefore, highly desirable to provide simple means for adjusting the slats of such blinds to the desired level with respect to the window frame and to secure them in position without detracting from the appearance of the blind or the window frame to which the blinds are applied.

According to my invention improved means are provided in association with Venetian blinds, which permit free passage of a flexible member for adjusting the height of the slats and which by a simple movement of the flexible member becomes effective in securing the slats at the adjusted height.

Another object of my invention is to provide improved means associated with Venetian blinds, which serves as a guide for the free vertical passage of a flexible member utilized in raising and lowering the slats of the blinds, and which becomes effective upon slight lateral movement of the flexible member, to initiate a securing device provided with a double gripping edge which upon slight downward movement of the slats binds the flexible member against further movement and holds the slats in the desired position.

A further object of my invention is to provide improved means associated with Venetian blinds, including a securing device having forward and rear gripping edges and arranged in such a manner that when a flexible member attached to the bottom rail of the blind is moved in contact with the forward gripping edge and released, a double binding action takes place which prevents further movement of the flexible member in a direction which lowers the slats, the binding action becoming more effective in proportion to the pulling action of the slats upon the cord.

My invention will be better understood by reference to the accompanying drawing, in which

Fig. 1 is a front elevational view of a Venetian blind showing a side view of my improved apparatus;

Fig. 2 is an enlarged side elevational view of my improved apparatus, parts being broken away to show the securing device in inoperative position;

Fig. 3 is a view similar to Fig. 2 showing the securing device in operative position;

Figs. 4 and 5 are side and plan views, respectively, of my improved apparatus; and

Fig. 6 is a perspective view of my improved securing device in a slightly exaggerated form.

Referring to Fig. 1 of the drawing, a Venetian blind of the usual construction is illustrated, including a head rail 1, a tilting rail 2, a bottom rail 3 and a plurality of slats 4 which are connected together and to the bottom and tilting rail by tapes 5. The head rail may be secured to the window frame in any desired manner. As shown the opposite ends of the head rail are secured in recesses in brackets 6 and 7 affixed to opposite sides of the window frame. As is usual in such constructions the bottom rail and the slats may be raised by one or more flexible members, such as ropes or cords 8, which are attached to the bottom rail and extend through openings in the slats and head rail, the cords being arranged to pass over guides or pulleys 9 in the head rail and over a guide 10 in my improved apparatus and thence downwardly to a position where they may be conveniently manipulated by the operator. The tilting device 11, which may be of any desired form, is secured to the head rail adjacent one end thereof and is provided with a cord 12 for adjusting the slats to the desired angle and a trunnion 13 removably extending into an opening in one end of the tilting rail, the other end of the tilting rail being supported by a bracket forming part of my improved apparatus.

According to my invention, I have provided a composite structure or apparatus designated generally in Fig. 1 by the numeral 14, which supports one end of the tilter rail, provides a guide for the cord or cords by means of which the slats of the blind are adjusted, and which is effective at the will of the operator to positively secure the slats at the desired level.

As illustrated more particularly in Figs. 2 to 5, my improved structure includes a casing 15 having outwardly extending flanges 16 which are attached to a bracket 17. Bracket 17 is of angular form, the flange 18 being provided with apertures for receiving screws to attach the apparatus to the head rail, and the downwardly extending flange 19 being provided with a slot 20, Fig. 4, which is adapted to receive a trunnion 21 extending from tilter rail 2, a stop or key 22 being provided to hold the trunnion in place.

To lessen the cost of construction and to provide for the removal of the tilter rail and its

dependent slats from the head rail, key 22 is pivotally secured to flange 19 in a special manner. As illustrated an annular flange 22a is punched from the key and inserted through an aperture in flange 19, the ends of the flange being curled back upon flange 19. By providing this arrangement, when key 22 is rotated upon its pivot, trunnion 21 may be removed from slot 20 and the tilter rail may be moved longitudinally to remove it from the tilter. It will be noted that the slot 20 is arranged in bracket 17 to the right of casing 15 as shown in Fig. 4. By providing this arrangement, the tendency of trunnion 21 to be thrown out of slot 20 by a sudden downward pull or jerk on cords 8 is minimized. In addition, by my preferred method of fastening latch 22 to the flange 19 directly above the slot the latch 22 will fall by gravity over the slot 20 after the trunnion 21 is inserted in place and will prevent displacement of the trunnion.

For conveniently guiding the ends of cords 8, the upper portion of casing 15 extends through a slot in the head rail and is provided with a guide or pulley 10 which is rotatably mounted in casing 15 and is grooved to receive cords 8. One of the side walls of casing 15 is also provided with grooves 23 which cooperate in guiding the cords through the casing.

For adjustably securing the cord against upward movement through the casing, a securing device 24 is pivotally mounted in the casing and is provided with a free end having a forward gripping edge 25 and a rear gripping edge 26, the forward gripping edge being at a shorter radial distance from the pivot point 27 than the rearward gripping edge and being spaced therefrom. As shown more particularly in Figs. 4 and 6 of the drawing, the securing device includes arms 31 and 32 which are connected at their free ends with an arcuate portion 33 provided with an upper flange 34, the free edge of which is serrated to provide the forward gripping edge 25, and a lower flange 35, the free edge of which is serrated to provide the rear gripping edge 26. The gripping edges may be of any desired structure that will bind the cords between the side wall and the securing device. For instance, the gripping edges may be in the form of roughened surfaces, or the edges may be provided with prongs, or serrated as shown in Fig. 4. As illustrated more particularly in Figs. 2 and 3 of the drawing, the downward movement of the free end of the securing device 24 is limited by a lug 28 on the casing 15.

From the construction so far described it will be noted that the cords 8 may be pulled over the guide 10 and downwardly between the side wall 15 and securing device 24. To provide a substantially straight pull when the operator stands a short distance from the side of the window, the casing 15 is attached to the bracket 17 at a slight angle as illustrated in Fig. 4.

For the purpose of holding the slats of the blind at the desired level with respect to the window, it is only necessary for the operator to move cords 8 in a lateral direction to engage the forward gripping edge 25. The cords are then released and the downward pull of the bottom rail 3 and the slats 4 upon the cords causes a counterclockwise movement of the securing device and as the pull is continued the forward edge 25 forces one portion of the cords against the side wall 29 of the casing, following which the rear gripping edge 26 engages another portion of the cords and forces them against the side wall of the casing, and the cords are thus securely bound against side wall 29. To more firmly bind the cord against slipping, the side wall 29 may be provided with dents 30 which cooperate with the forward gripping edge 25 to provide a binding action upon the cords. It will also be noted that since the gripping edge 26 is arranged at a greater radial distance from the pivotal axis 27 it will provide a closer binding action than the gripping edge 25 and that the space formed by the gripping edges and arcuate surface 33 is adapted to receive the bulge in the cord between the gripping edges. Consequently as the head rail and slats tend to pull the cords 8 upwardly the binding action increases, which positively prevents further upward movement of cords 8 and downward movement of the slats.

To release the binding action of the securing device upon the cords, it is only necessary to pull the cords downwardly, whereupon the securing device is rotated in a clockwise direction, being limited in its downward movement by the lug 28, as shown in Fig. 2. When the securing device is in this position, the cords may be pulled freely through the casing to raise the slats or released to permit the slats to descend to the desired level, the slats being again secured at the desired level by a simple lateral movement of the cords into engagement with the forward gripping edge.

What I claim is:

1. Apparatus of the character described, comprising a casing having a side wall, a securing device movably mounted in said casing having a smooth arcuate end portion provided at one side with a forward projection and at the other side with a rear projection which is substantially parallel to the forward projection, each of said projections being provided with a gripping edge, means for limiting the movement of said device in one direction to provide a space between the forward projection and the side wall for the free longitudinal passage of a cord, said device being adapted to be moved in the opposite direction upon movement of the cord into engagement with the gripping edge of the forward projection and then longitudinally in a direction to move the free end of said device toward the side wall, the movement of the free end of said device toward the side wall being effective in first causing the gripping edge of the forward projection to force one portion of said cord against the side wall and form an indenture in said cord and to then cause the gripping edge of the rear projection to engage another portion of the cord and force it against the end wall forming a second indenture in the cord in spaced relation to the first indenture and substantially parallel therewith.

2. Apparatus of the character described comprising a substantially U-shaped casing arranged with its closed side extending substantially vertical and having an open top, a guide mounted in the upper portion of the casing and arranged to cooperate with a pair of cords extending vertically along the closed side of the casing in side by side relation to each other, and a securing device pivotally mounted in said casing, said securing device including two spaced arms connected at their free ends with a downwardly inclined arcuate portion, a pair of flanges having gripping edges extending outwardly from the upper and lower sides of said arcuate portion in substantially parallel relation to each other, means for limiting the downward movement of

said device to provide a space between the edge of the upper flange and the end wall for the free passage of said cords, said device being adapted to be moved in the opposite direction upon movement of the cords into engagement with the gripping edge of the upper flange and then longitudinally to move the free end of said device toward the end wall, the movement of the free end of said device toward the end wall being effective in first causing the gripping edge of the upper flange to form an indenture in the cords as it is forced against the side wall and to then cause the gripping edge of the lower flange to form a parallel indenture in the cords in spaced relation to the first indenture and substantially parallel therewith.

3. Apparatus of the class described comprising a substantially U-shaped casing having an end wall and two parallel side walls, said casing having an open top, a guide mounted in the upper portion of said casing and arranged to cooperate with a pair of cords extending vertically along the end of the casing in side by side relation to each other, and a securing device pivotally mounted in said casing, said securing device including two spaced arms, one of which lies adjacent to one of said side walls and the other of which lies adjacent the other side wall, and which are connected together by an arcuate portion, the upper end of said arcuate portion being closer to the pivotal axis than the lower end, a pair of flanges having gripping edges disposed in substantially parallel relation, one of which extends from the upper side of said arcuate portion and the other of which extends from the lower side thereof, means for limiting the downward movement of said device to provide a space between the edge of the upper flange and the end wall for the free passage of said cords, said device being adapted to be moved in the opposite direction upon movement of the cords into engagement with the gripping edge of the upper flange and then upwardly to move the free end of said device toward the end wall, the movement of the free end of said device toward the end wall being effective in first causing the gripping edge of the upper flange to form an indenture in the cords as it is forced against the end wall and to then cause the gripping edge of the lower flange to form a parallel indenture in the cords in spaced relation to the first indenture and substantially parallel therewith.

4. Apparatus of the character described comprising a casing having an end wall, a securing device pivotally mounted in said casing, said securing device having an arcuate surface, one end of which is at a greater distance from said pivotal axis than the other end, flanges extending outwardly from the opposite sides of said arcuate portion in substantially parallel relation to each other, the free end of each of said flanges being provided with a serrated edge, means for limiting the movement of said device in one direction to provide a space between one of said serrated edges and the end wall for the free longitudinal passage of a cord, said device being adapted to be moved in the opposite direction upon movement of the cord into engagement with the upper serrated edge and then longitudinally in a direction which moves the free end of said device toward the side wall, the movement of the free end of said device toward the side wall being effective in first causing the serrated edge of the upper flange to force one portion of said cord against the side wall and form an indenture therein and then to cause the serrated edge of the lower flange to engage another portion of the cord and force it against the side wall forming a second indenture in the cord in spaced relation to the first indenture and substantially parallel therewith.

5. Apparatus of the class described comprising a substantially U-shaped casing arranged with its closed end extending substantially vertical and having an open top, a guide mounted in the upper portion of the casing and arranged to cooperate with a pair of cords that extend vertically along the closed side of the casing in side by side relation to each other and a securing device pivotally mounted in said casing, said securing device including two spaced arms terminating in an arcuate portion, one end of which is at a greater distance from said pivotal axis than the other end, flanges disposed in substantially parallel relation extending outwardly from the opposite sides of said arcuate portion, the free ends of which are provided with serrated edges, means for limiting the downward movement of said device to provide a space between the edge of the upper flange and the end wall for the free passage of said cords, said device being adapted to be moved in the opposite direction upon movement of the cords into engagement with the gripping edge of the upper flange and then longitudinally to move the free end of said device toward the end wall, the movement of the free end of said device toward the end wall being effective in first causing the gripping edge of the upper flange to form an indenture in the cords as they are forced against the side wall and to then cause the gripping edge of the lower flange to form a parallel indenture in the cords in spaced relation to the first indenture and substantially parallel therewith.

6. A securing device including two parallel arms adapted to be movably mounted in a casing, said arms being connected by an arcuate portion having outwardly extending flanges at opposite ends thereof, said flanges being disposed in substantially parallel relation to each other and each of the free sides of said flanges having a gripping edge.

7. A securing device including a metal stamping having two parallel arms connected by an arcuate portion and flanges extending outwardly from opposite ends of said arcuate portion, said flanges being disposed in substantially parallel relation to each other and the free ends of said flanges being serrated to form two spaced substantially parallel gripping edges.

8. Apparatus of the character described, comprising a casing having a side wall, a securing device movably mounted in said casing having a smooth arcuate end portion provided at one side with a forward projection and at the other side with a rear projection which is substantially parallel to the forward projection, each of said projections being provided with a gripping edge, means for limiting the movement of said device in one direction to provide a space between the forward projection and the side wall for the free longitudinal passage of a cord, said device being adapted to be moved in the opposite direction upon movement of the cord into engagement with the gripping edge of the forward projection and then longitudinally in a direction to move the free end of said device toward the side wall, the movement of the free end of said device toward the side wall being effective in first causing the gripping edge of the forward projection to force

one portion of said cord against the side wall and form an indenture in said cord and to then cause the gripping edge of the rear projection to engage another portion of the cord and force it against the end wall forming a second indenture in the cord in spaced relation to the first indenture and substantially parallel therewith, and the arcuate portion of said device between the two substantially parallel projections being formed to receive the bulged portion of the cord between the two indentures.

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