

VENETIAN-BLIND CRADLE AND ORGANIZATION

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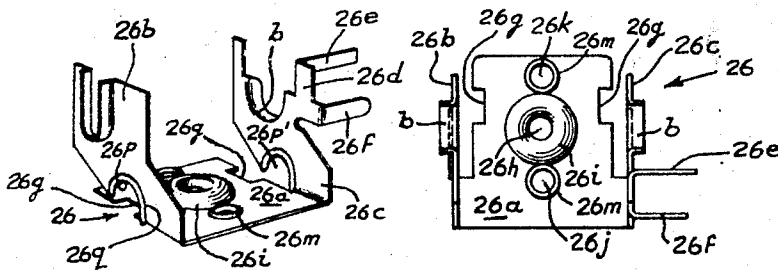


FIG. 1

FIG. 2

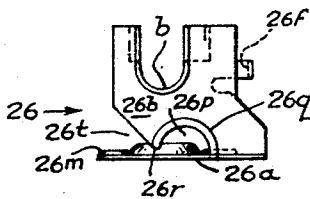


FIG. 5

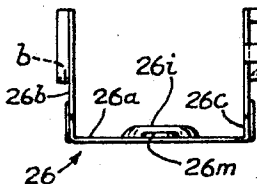


FIG. 3

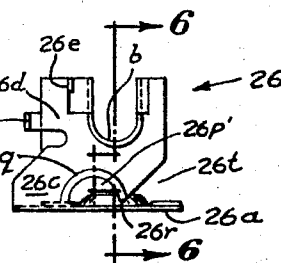


FIG. 4

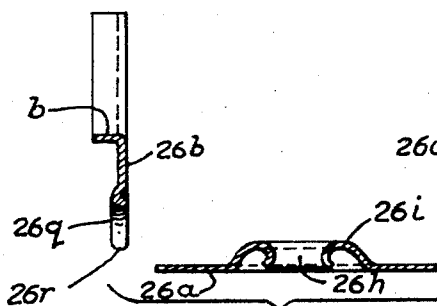


FIG. 6

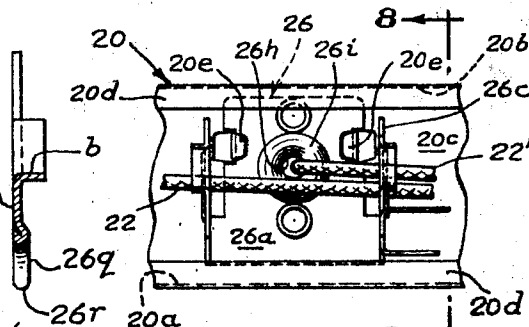


FIG. 7

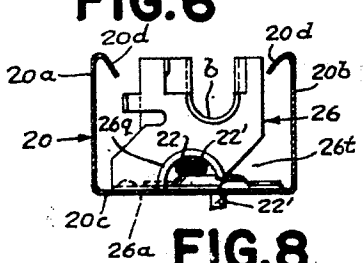


FIG. 8

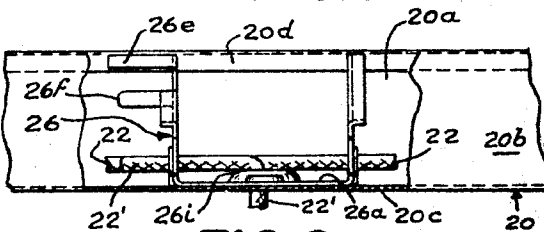


FIG. 9

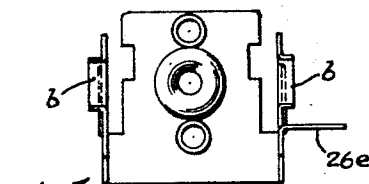


FIG. 10

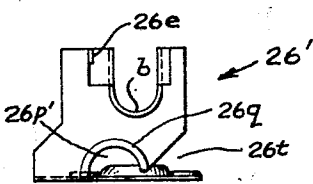


FIG. 11

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3,447,585
VENETIAN-BLIND CRADLE AND ORGANIZATION

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Int. Cl. E06b 9/323

U.S. Cl. 160-178

9 Claims

ABSTRACT OF THE DISCLOSURE

For a Venetian blind: A cradle and lift-cord organization in which the lift cords, in their horizontal runs in the head channel, pass through holes in the vertical legs of the cradle and are confined closely adjacent to the base of the cradle, the construction and arrangement providing for sidewise entry of the lift cords into the holes in the legs of the cradle and also providing restraint against accidental movement of the lift cords out of the holes in the legs of the cradle.

CROSS REFERENCE TO RELATED APPLICATION

The present application is a continuation-in-part of application S.N. 575,632 filed Aug. 29, 1966.

BACKGROUND OF THE INVENTION

(1) *Field of the invention*

Venetian-blind cradles and Venetian-blind organizations embodying the same.

(2) *The prior art*

The present invention is an improvement upon the cradle and organization disclosed in U.S. patent Nelson 2,629,434 filed Oct. 4, 1947, and issued Feb. 24, 1953. The present invention is also an improvement upon the cradle and organization disclosed in U.S. patent Nelson 2,622,673 filed Aug. 16, 1949, and issued Dec. 23, 1952. In these patents the tilt rod of the blind is journaled in the upper end of a leg or legs which project upwardly from the base of the cradle. The tilt rod carries a drum or rocker which is positioned over the base of the cradle and which is oscillated to manipulate the associated ladder of the blind.

A lift cord of the blind extends upwardly through the base of the cradle, over a cord-guiding pulley that is mounted above the base of the cradle, and thence horizontally through an elevated hole in the right-hand leg of the cradle in the earlier-filed Patent 2,629,434 or past the single leg of the cradle in the later-filed Patent 2,622,673. In the earlier-filed Patent 2,629,434 a second lift cord extends horizontally through holes in the two legs of one of the cradles, and in the later-filed Patent 2,622,673 a second lift cord extends past the single leg of one of the cradles. In both patents the horizontal runs of the lift cords are at a substantial level above the base of the cradle, and the tilt-rod-supporting legs of the cradle are long and the head bar of the blind is tall. In the earlier-filed Patent 2,629,434 the lift cords have to be threaded longitudinally through holes in the cradle legs. In the later-filed Patent 2,622,673 longitudinal threading through the cradle leg is unnecessary but the cords pass the cradle leg without being laterally confined to the extent that is desirable.

SUMMARY OF THE INVENTION

A cord guide is associated with the base of the cradle

and one or two tilt-rod-supporting legs extend upwardly from the base of the cradle. A lift cord passes upwardly through the base of the cradle and makes a 90° bend to a predetermined level at the cord guide and then extends approximately horizontally through a cord hole in a tilt-rod-supporting leg of the cradle. The level of the cord at the cord guide is somewhat above the base of the cradle.

In accordance with one feature of the invention the cord hole in the tilt-rod-supporting leg has a wall which extends across the top of the cord and downwardly on opposite sides of the cord, the wall of the cord hole having a lateral opening below the top of the cord and through which the cord can be passed sidewise for entry into and removal from the hole but only upon the cord being depressed below the level of the cord at the cord guide.

In accordance with another feature of the invention the lateral opening through which the lift cord can be passed sidewise is located wholly below the level of the uppermost cord-guide surface that is engaged by the lift cord in making the 90° bend from vertical to horizontal. The wall of the cord hole in the tilt-rod-supporting leg may extend downwardly on one side of the lift cord to the cradle base and may extend downwardly on the opposite side of the lift cord to a level which is close to the cradle base.

In accordance with other features of the invention the cradle has two tilt-rod-supporting legs which extend upwardly from the opposite ends of the cradle base, each leg has a cord hole with a lateral opening close to the cradle base, and there is a second lift cord which passes through the holes in the two cradle legs after sidewise entry therein.

In accordance with further features of the invention the lateral opening in the wall of the cord hole in each leg of the cradle is at a level close to the level of the base of the cradle and may be at the rear of the cord hole. Further, each leg may have a wedge-shaped cutout at the rear thereof which guides the cord sidewise toward the narrow opening in the wall of the cord hole for sidewise entry of the cord into the cord hole. The rear is the side that normally faces away from the room when the Venetian blind is installed.

In accordance with a still further feature of the invention the wall of the cord hole is thickened to provide a cord-engaging surface which is thicker than the sheet metal of the tilt-rod-supporting leg.

BRIEF DESCRIPTION OF THE DRAWING

FIGURE 1 is an isometric view of a cradle of the invention.

FIGURE 2 is a top plan view of the cradle of FIGURE 1. The front of the cradle is at the bottom of the view. The rear of the cradle is at the top of the view. The two ends of the cradle are at the right and the left, respectively.

FIGURE 3 is a front elevation of the cradle shown in FIGURES 1 and 2.

FIGURE 4 is an end elevation of the cradle, looking from the right of FIGURE 3.

FIGURE 5 is an end elevation of the cradle, looking from the left of FIGURE 3.

FIGURE 6 is an enlarged vertical section looking toward the rear of the cradle, the section being on the line 6-6 of FIGURE 4.

FIGURE 7 is a top plan view showing the cradle of FIGURES 1-6 installed in a Venetian-blind head-bar, and also showing two lift cords of the blind. The front of the head bar, which is the side that normally faces toward the room when the blind is installed, is at the bot-

tom of the figure. The rear of the head bar, which is the side that normally faces away from the room when the blind is installed, is at the top of the figure.

FIGURE 8 is a vertical section taken on the line 8—8 of FIGURE 7.

FIGURE 9 is a rear elevation looking from the rear of the head bar which, in FIGURE 7, is at the top. The rear wall of the head bar is broken away to show the cradle and the associated lift cords.

FIGURE 10 is a top plan view corresponding to FIGURE 2, showing a modified cradle.

FIGURE 11 is an end elevation of the modified cradle, looking from the right of FIGURE 10.

DESCRIPTION OF THE EMBODIMENT THAT IS PRESENTLY PREFERRED

Except as otherwise indicated, the description herein-after refers to the particular forms of the invention that are shown in the drawing; it does not necessarily refer to any other form in which the invention may be embodied. The claims, however, do embrace other forms in which the invention may be embodied. The best mode thus far contemplated of carrying out the invention is herein disclosed. Nevertheless the disclosure is by way of illustration and example, since other specific modes are possible, and in some instances it may be feasible to dispense with one or more features of the invention.

The Venetian blind (not shown) has a head which consists primarily of a sheet-metal channel 20 (FIGURES 7-9) and mechanism that is contained therein. The channel 20 has a front wall 20a, a rear wall 20b and a bottom wall 20c. Along the upper edges of each of the front and rear walls 20a and 20b there is a longitudinally-extending flange 20d which is folded inwardly and downwardly. The bottom wall 20c is pierced in customary manner for the passage upwardly into the channel 20 of stringlike sidepieces of the ladders (not shown) and lift cords 22 and 22'.

A steel tilt-rod (not shown) is journaled in two or more cradles 26 (one shown), the bearings of the cradles being low so as to position the tilt rod abnormally close to the bottom 20c of the head channel. Each cradle is a 1-piece sheet-steel stamping having a base 26a and spaced tilt-rod-supporting legs 26b and 26c. The leg 26b projects vertically upwardly from the left end of the cradle base and the leg 26c projects vertically upwardly from the right end of the cradle base. Each leg is formed with a semi-cylindrical bearing at *b* in which the tilt rod is journaled.

The leg 26c is provided with an arm 26d (FIGURES 1 and 4) which has two fingers 26e and 26f. The arm 26d initially projects perpendicularly to the tilt rod and the fingers 26e and 26f initially project parallel to the tilt rod. Viewed as in FIGURE 2, the finger 26e can be bent 90° counterclockwise to dispose it over the tilt rod and thereby hold the tilt rod in the upwardly-opening semicylindrical cradle-bearings *b*. If the cradle 26 be adjacent to the right-hand end of the tilt rod, as one cradle of the blind sometimes is, the arm 26d may be bent as a whole 90° counterclockwise; this disposes the finger 26e above the tilt rod to hold it in the bearings *b* and disposes the finger 26f across the end of the tilt rod to act as a stop which limits longitudinal movement of the tilt rod to the right. For a better understanding of the tilt rod and the relationship thereto of the arm 26d and the fingers 26e and 26f, see the parent application S.N. 575,632.

The base 26a of each cradle of the blind rests against the bottom 20c of the head channel (see FIGURES 7-9) and is secured thereto in any suitable manner, e.g., by sheet-metal fingers 20e (see FIGURE 7). The fingers 20e, which are struck up from the bottom 20c of the head channel, interlock with edge notches 26g in the base of cradle (see FIGURE 2) and are clinched against the top surface of the base of the cradle.

The base 26a of the cradle is provided with a central

hole 26h (FIGURES 2, 6 and 7) which registers with a hole (not shown) in the bottom 20c of the head channel to afford vertical passage of a lift cord, e.g. the lift cord 22' shown in FIGURE 7. The metal surrounding the hole 26h in the base of the cradle is embossed at 26i in the manner shown at 27 in Lorentzen U.S. Patent 2,872,976. This provides a cord guide that is a sheet-metal zone which is pressed upwardly somewhat from the general level of the base 26a. This cord guide provides a smooth bearing surface for the lift cord that comes up through the hole 20h and then makes a 90° bend to a predetermined level, after which it proceeds generally horizontally toward the right-hand end of the head channel.

Midway between the legs 26b and 26c the base 26a of the cradle is provided with front and rear holes 26j and 26k (see FIGURE 2) which register with holes (not shown) in the bottom 20c of the head channel and provide passage for the front and rear sidepieces of the ladder which is shown in the parent application S.N. 575,632. In forming each hole 26j and 26k the metal is drawn upwardly into a short thimble and flared outwardly in the manner of an eyelet as shown at 26m to provide a smooth bearing surface for the stringlike sidepiece of the ladder.

The Venetian blind will have two cradles 26, one mounted toward each end of the head channel 20. In addition to these two, one or more intervening cradles may be used if the blind is very wide. For the purpose of the drawing the blind is considered to have only two cradles 26; and the cradle that is shown in FIGURES 7, 8 and 9 is the cradle that is toward the right-hand end of the channel 20. The cord lock (not shown) for the two lift cords of the blind is considered to be even closer to the right-hand end of the channel 20. This means that the cord lock will be positioned to the right of the cradle as the cradle is seen in FIGURE 7 but will be positioned to the left of the cradle as the cradle is seen in FIGURE 9 since FIGURE 9 is a rear view.

A lift cord 22' comes up through the central hole 26h in the base 26a of the cradle that is shown in FIGURES 7-9. Immediately after reaching the level of the cradle base 26a, the cord 22' is guided by the cord guide 26i through a 90° bend to a level that is predetermined by the uppermost surface of the guide 26i. Then the cord 22' proceeds generally horizontally through a cord hole in the leg 26c of the cradle and continues toward the right-hand end of the channel 20 for passage downwardly through the cord lock of the blind as is well-understood in the art. At the left cradle (not shown) the lift cord 22 (see FIGURE 7) comes up through the central hole in the bottom of the cradle and is directed horizontally to the right through the cord hole in leg 26c of the left cradle, all in the manner just described as regards cord 22' and the right cradle shown in FIGURES 7-9. After traversing the space between the left and right cradles 26, the lift cord 22 passes through the aligned cord holes in the two legs of the right-hand cradle as is shown in FIGURES 7-9. Then the cord 22 proceeds with the cord 22' to the cord lock.

The lift-cord hole in the cradle leg 26b is designated 26p and the lift-cord hole in cradle leg 26c is designated 26p'. These cord holes are alike, each being substantially semicircular. As regards each cord hole 26p and 26p', the wall of the hole extends from the cradle base (toward the front of the cradle) to a nose 26r that is somewhat higher than the cradle base (toward the rear of the cradle). To obviate chaffing of the lift cords, each cord hole 26p and 26p' is formed with a welt edge 26q. This welt edge is an integral bead that is formed from the metal of the cradle leg and which extends around the periphery of the hole in the cradle leg.

In harmony with the aforesaid relationship between the wall of each cord hole 26p or 26p' and the base of the cradle, each leg of the cradle merges with the base

26a of the cradle toward the front of the cradle but not toward the rear of the cradle. Toward the rear of the cradle each leg 26b and 26c ends at the nose 26r (FIGURES 4-6) which is somewhat above the level of the cradle base 26a but is at a level somewhat below the level of the top of the cord guide 26i. Extending inwardly from the rear edge of each cradle leg 26b and 26c there is a wedge-shaped, or funnel-shaped, cutout 26t (FIGURES 4 and 5).

With a cradle 26 installed in head channel 20, and before the rear sidepiece of the associated ladder (not shown) is brought up into the channel through the hole 26k in the base of the cradle, the horizontal runs of the lift cords (22 and/or 22') can be inserted sidewise into the cord holes (26p and/or 26p') in the cradle legs. The space beneath the nose 26r constitutes a lateral opening into the cord hole through which the horizontal run of the lift cord can be passed sidewise for entry into and removal from the cord hole. However, this lateral opening is entirely below the level of the top of the cord guide 26i, over which each of the lift cords 22 and/or 22' pass. Therefore in inserting a lift cord into the cord hole (26p or 26p') or removing it therefrom it is necessary to depress the lift cord to align it with the lateral opening which is beneath the nose 26r.

Once the lift cord or cords have been inserted into the cord holes in the legs of the cradle, the cords are closely confined both vertically and horizontally. The wall of each of the cord holes 26p and 26p' extends across the top of the cord or cords, being almost in contact with the cords and preventing them from rising significantly above the cord level established by the cord guide 26i. Also the wall of each cord hole 26p or 26p' extends downwardly on opposite sides of the cord or cords, confining the cord or cords against substantial lateral movement. Since the lateral opening in the cord hole 26p or 26p', i.e. the space below nose 26r, is below the top of the cord guide 26i, there is little danger of the lift cord or cords accidentally leaving the cord hole. However, each lift cord can be removed by depressing it and passing it sidewise under the nose 26r.

Referring to FIGURE 1 of the parent application (see FIGURE 7 of the present application), the last paragraph of the parent application discloses that the lift cords 22 and 22' continue to the right and, after passing through a cord lock, hang down in front of the blind for grasping to raise and lower the blind. The last paragraph of the parent application also refers to a particular cord lock that may be used and states that it will be held against the front wall 20a of the head channel. With the cord lock against the front wall of the head channel, as is common in the art, the lift cords will incline forwardly in passing from the right-hand cradle to the cord lock. Therefore, if the lateral openings in the cord holes in the cradle be at the rear of the cradles as is disclosed in both the parent application and the present application, there will be better protection against a lift cord accidentally leaving a cord hole in the right-hand cradle under the influence of whipping action that can sometimes occur between the right-hand cradle and the cord lock.

The small end of the wedge-shaped, or funnel-shaped, cutout 26t leads to the lateral opening in the cord hole (26p or 26p') as is seen in FIGURE 4 for example. Thus the margin of the cutout 26t guides the cord to the lateral opening for sidewise entry of the cord into the hole.

The lift cords 22 and 22' are ordinarily braided cords, made from cotton or from nylon or other synthetic fibers. Suitable cords are available on the market. The cradle 26 is stamped from sheet metal of suitable thickness and suitable characteristics. A suitable metal is mild steel which has been galvanized to protect against rust. In addition, or in the alternative, the cradle may be plated with nickel or other rust-resistant metal after it has been formed.

The cradle 26' shown in FIGURES 10 and 11 is the

same as the cradle 26 shown in FIGURES 1-9 except that it omits the arm 26d and omits the bendable finger 26f that is adapted to serve as an end stop for the right-hand end of the tilt rod of the blind. Longitudinal movement of the tilt rod, in either direction, may be limited by various means such as for example by the sheet-metal end-braces which are customarily placed at each end of the channel 20. Where the cradle is not called upon to provide an end stop for the tilt rod the cradle of FIGURES 10 and 11 is presently preferred. This cradle does have the finger 26e which is adapted to be bent across the top of the tilt rod to hold the tilt rod in the bearings b of the cradle.

We claim:

1. In a Venetian blind, a cradle-and-lift-cord organization comprising a cradle and a lift cord, said cradle having a base, having a cord guide associated with the base and having a tilt-rod-supporting leg extending upwardly from the base, said lift cord passing upwardly through the base of the cradle and making a 90° bend to a predetermined level at the cord guide and then extending approximately horizontally through a cord hole in said tilt-rod-supporting leg—wherein the improvement comprises: the cord hole in the tilt-rod-supporting leg having a wall which extends across the top of the cord and downwardly on opposite sides of the cord, the wall of the cord hole having a lateral opening below the top of the cord and through which the cord can be passed sidewise for entry into and removal from the hole but only upon the cord being depressed to bring the top of the cord at the cord hole below the level of the top of the cord at the cord guide.

2. A cradle-and-lift-cord organization as in claim 1 wherein the improvement also comprises: the lateral opening, through which the lift cord can be passed sidewise, being located wholly below the level of the uppermost cord-guide surface that is engaged by the lift cord.

3. A cradle-and-lift-cord organization as in claim 1 wherein the improvement also comprises: the wall of the cord hole in the tilt-rod-supporting leg extending downwardly on one side of the lift cord to the cradle base and extending downwardly on the opposite side of the lift cord to a level which is close to the cradle base and below the level of the uppermost cord-guide surface that is engaged by the lift cord.

4. A cradle-and-lift-cord organization as in claim 1 in which said tilt-rod-supporting leg is at one end of the cradle-base, a second tilt-rod-supporting leg extends upwardly from the opposite end of the cradle-base, and a second lift cord extends generally horizontally through a cord hole in the second tilt-rod-supporting leg and thence through the cord hole in the tilt-rod-supporting leg of claim 1—wherein the improvement also comprises: the cord hole in the second tilt-rod-supporting leg having a wall which extends across the top of the second lift cord and downwardly on opposite sides of the second lift cord, the wall of such cord hole having a lateral opening close to the cradle base through which the second lift cord can be passed sidewise for entry into and removal from such cord hole, the lateral opening of claim 1 affording sidewise entry of the second lift cord into the hole in the leg of claim 1.

5. A cradle-and-lift-cord organization as in claim 4 wherein the improvement also comprises: the lateral openings in the walls of the cord holes being at the rear of the cord holes, the rear being the side that faces away from the room when the blind is installed.

6. For a Venetian blind, a cradle of stamped sheet-metal having a base, having a cord guide associated with the base, and having a tilt-rod-supporting leg extending upwardly from the base, the leg having a cord hole for the generally-horizontal passage of a lift cord which passes upwardly through the base and over the cord guide and thence through the cord hole in the leg—wherein the improvement comprises: the cord guide being a sheet-metal zone pressed upwardly from the general level of

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the base, and said cord hole in the tilt-rod-supporting leg having a wall which at the top of the hole is spaced upwardly from the base and which on one side of the hole extends downwardly to the base and on the other side of the hole extends downwardly to a level close to the level of the base leaving a narrow lateral opening adjacent to the base through which a lift cord can be passed side-wise for entry into the hole.

7. A cradle as in claim 6 wherein the improvement also comprises: the narrow lateral opening in the wall of the cord hole being at the rear of the cord hole, the rear being the side that faces away from the room when the blind is installed.

8. A cradle as in claim 7 wherein the improvement also comprises: the tilt-rod-supporting leg having a wedge-shaped cutout which leads at its small end to the lateral

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opening in the wall of the cord hole, the margin of the cutout guiding a cord toward the lateral opening in the wall of the cord hole for sidewise entry of the cord into the cord hole.

9. A cradle as in claim 6 wherein the improvement also comprises: the wall of the cord hole being thickened to provide a cord-engaging surface which is thicker than the metal of the tilt-rod-supporting leg.

References Cited

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15 PETER M. CAUN, *Primary Examiner.*