Dec. 5, 1961 L. J. VELIA ET AL 3,011,236

FOUR-CORD EQUALIZER FOR VENETIAN BLIND LIFT CORDS

Filed June 1, 1960

FIG. 1

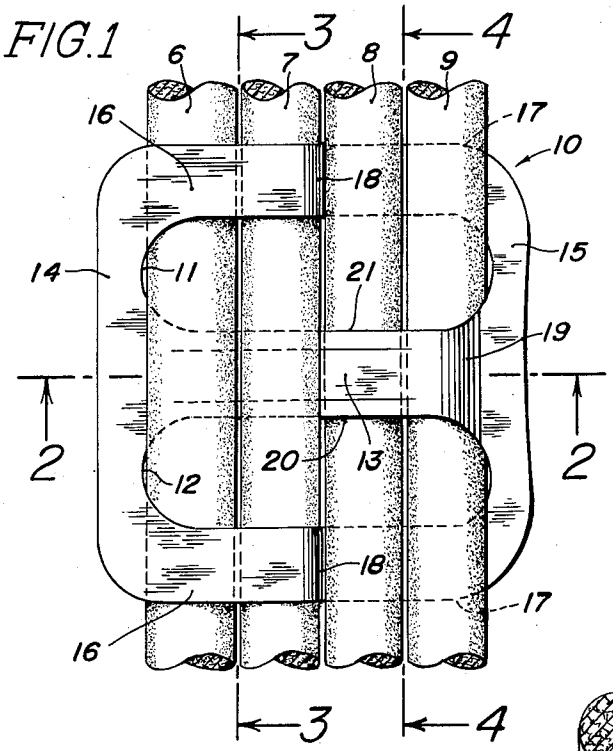


FIG. 5

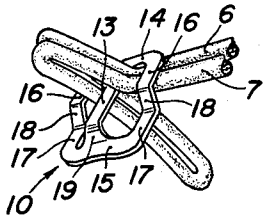


FIG. 6

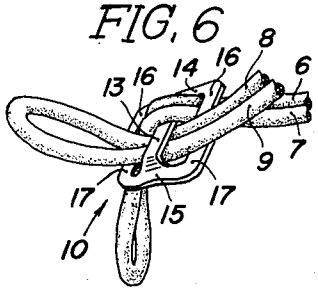


FIG. 2

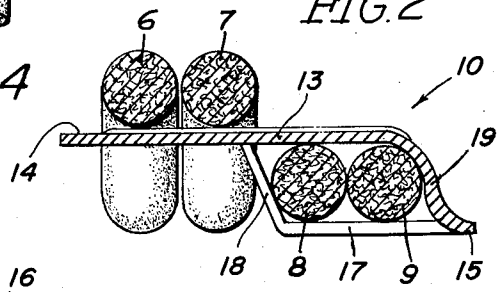


FIG. 3

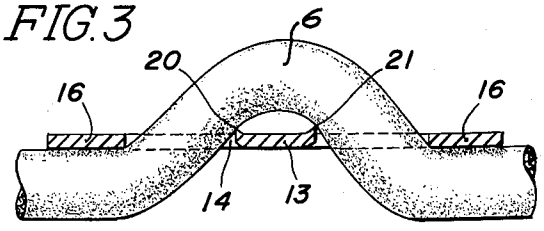
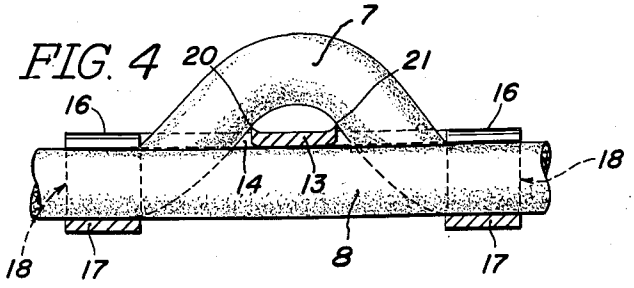


FIG. 4



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FOUR-CORD EQUALIZER FOR VENETIAN BLIND LIFT CORDS

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2 Claims. (Cl. 24—129)

The present invention relates to cord equalizers, and more specifically to a four-cord equalizer for use on the four lift cords of a large Venetian blind.

In the larger sizes of Venetian blind, particularly where the length of the blind exceeds about 6 or 7 feet, it is customary to use four lift cords instead of the usual two employed with smaller blinds, so as to reduce the total load carried by each cord. These lift cords are attached to the bottom rail at spaced points along the length thereof, and pass upwardly through holes in the slats to the headrail, where they pass over pulleys and extend toward one end of the headrail. Adjacent the said one end of the headrail, the lift cords pass over pulleys in one or more cord locks, and hang downwardly therefrom along the end of the blind. These lift cords are grasped in the hand and, after disengaging the cord lock, are pulled downwardly to raise the blind, or allowed to slip upwardly to permit the blind to lower.

If the lift cords are not pulled in unison and with equal tension on each cord, the bottom rail will be raised unevenly. To prevent this condition, it is customary to pass the four lift cords through a clip, or cord equalizer, which ties the cords together in such a manner that when the cords are grasped and pulled below the clip, all four cords are pulled with equal tension. This causes the blind to be raised evenly for one end thereof to the other, with the bottom rail and accumulated slats held horizontal at all times.

One disadvantage of prior four-cord equalizers is that it is quite difficult to make fine adjustments of one pair of cords with respect to the other so as to level the bottom rail when the blind is raised. The cords are bent sharply over and under the crosspieces of the cord equalizer, and to make any adjustment, it is necessary to work one pair of cords through the equalizer so as to equalize the tension in the cords. This is sometimes a laborious and time-consuming operation, as the adjustments are usually made in extremely small increments, and it is difficult to work just the right amount of cord through the equalizer, without working too much through it.

The primary object of the present invention is to provide a new and improved four-cord equalizer for Venetian blind lift cords, which is simple and easy to adjust for uniform tension in all four cords.

Another object of the invention is to provide a four-cord equalizer in which one pair of cords is fixedly held by the equalizer, while the second pair of cords is freely slidable through the equalizer. The advantage of this arrangement is that to equalize the cords it is necessary only to grasp the four cords below the equalizer and pull downwardly until all of the slack is taken up and the weight of the bottom rail can be felt. If the freely slidable pair of cords are not taut they can then be pulled down to take up the slack therein, after which all four cords are grasped firmly in the hand and pulled downwardly to raise the blind, or allowed to slip upwardly to permit the blind to lower.

Still a further object of the invention is to provide a four-cord equalizer which is inexpensive to manufacture, and extremely easy to install.

The foregoing and other objects and advantages of the present invention will become apparent to those skilled in the art upon consideration of the following detailed description of the preferred embodiment thereof, reference being had to the accompanying drawings, wherein:

FIGURE 1 is an enlarged top plan view of a four-cord equalizer embodying the principles of the invention;

FIGURE 2 is a transverse sectional view through the same, taken at 2—2 in FIGURE 1;

FIGURE 3 is a sectional view taken at 3—3 in FIGURE 1;

FIGURE 4 is a sectional view taken at 4—4 in FIGURE 1;

FIGURE 5 is a perspective view, showing the manner in which the first pair of cords are threaded through the equalizer; and

FIGURE 6 is a similar perspective view, showing the second pair of cords being threaded through the equalizer.

The device of the present invention is adapted to be used with the four lift cords **6**, **7**, **8**, and **9**, which depend from the usual cord lock adjacent one end of the Venetian blind headrail (not shown). The two lift cords **6** and **7** represent one pair, which are attached to the Venetian blind bottom rail (not shown) at longitudinally spaced points along the length thereof. The purpose of the device of the invention is to tie the four cords together in such a manner that equal tension is applied to all four of cords when they are operated to raise or lower the blinds.

The four-cord equalizer is designated in its entirety by the reference numeral **10**, and comprises a small clip stamped out of sheet metal, which is generally square in configuration with rounded corners. Two parallel, elongated holes **11** and **12** are punched out of the metal of the clip, and these are separated by a transversely extending bridge **13**. The left-hand side of the clip is designated by the reference numeral **14**, while the right-hand side, which lies at the lower level, is designated **15**.

The top and bottom ends of the clip each comprise a first portion **16**, which is co-planar with the left-hand side **14**, and the second portion **17**, which is co-planar with the right-hand side **15**. The two portions **16** and **17** are joined at the middle of the clip by a bend **18**. The elevated end portion **16** and the depressed end portion **17** lie in parallel horizontal planes, which are spaced apart a distance substantially equal to the diameter of the lift cords.

The bridge **13** is co-planar with the left-hand side **14** for all but the extreme right-hand end thereof, where it is bent downwardly at **19** to join the depressed side portion **15**. The edges of the bridge **13** are bent up slightly at **20** and **21** to form lips that bite into the cords to hold the latter against slipping.

From the foregoing, it will be seeen that the left-hand half of the clip, including end portions **16**, the left side **14**, and the left half of the bridge member **13**, lies in one plane; while the right-hand side of the clip comprises a depressed portion consisting of the end portions **17** and right side **15**, while the right-hand end of the bridge member **13** continues in the plane of the left-hand side and bends sharply down at **19** to join the right-hand edge **15**.

The four lift cords **6**, **7**, **8**, and **9** are inserted into the cord equalizer as illustrated in FIGURES 5 and 6. After first making sure that the cords are not twisted, one loop of cords **6**, **7** is inserted under the top end portion **16**, over the left-hand end of the bridge **13** and under the end portion **16** at the bottom. The second pair of lift cords **8**, **9** is inserted straight through the other side of the equalizer, as shown in FIGURE 6, and is free to slip through the equalizer to provide the self-compensating feature. The four-cord equalizer should be installed on the cords at a point high enough to allow the cords to be grasped below the equalizer when the blinds are to be raised. To allow the cords to equalize themselves automatically, the free cords **8**, **9** are allowed to slip through the hand until there is equal tension in both

sets of cords. At this point, the four cords are grasped firmly in the hands and are pulled to raise or lower the blinds.

While we have shown and described in considerable detail what we believe to be the preferred form of our invention, it will be understood that various changes may be made in the shape and arrangement of the parts without departing from the broad scope of the invention, as defined in the appended claims.

We claim:

1. A four-cord equalizer for use with two pairs of Venetian blind lift cords, said equalizer comprising a clip having a pair of transversely extending elongated holes provided therein, said holes being parallel to one another and being separated by a transversely extending bridge, the sides of said clip being disposed within parallel planes separated by a distance substantially equal to the diameter of the lift cords, the ends of said clip each comprising a first portion disposed in the plane of one of said sides, a second portion disposed in the plane of the other of said sides, and a bend connecting said first and second portions, said bridge being disposed within the plane of said one side for substantially its entire length, said bridge being bent downwardly at one end to join said other side, one of said pairs of cords being passed under said first portion of one of said ends, over said bridge, and under said first portion of the other of said ends, and the other of said pairs of cords being passed over said second portion of one of said ends, under said bridge, and over said second portion of the other of said ends, said one pair of cords being held against slipping through said clip, and said other pair of cords being freely slidable through said clip.

2. A four-cord equalizer for use with two pairs of Venetian blind lift cords, said equalizer comprising a clip having a pair of transversely extending elongated holes provided therein, said holes being arranged parallel to one another, and being separated by a transversely extending bridge, said two pairs of cords being threaded through said holes on opposite sides of the longitudinal centerline of said clip, the ends of said clip and said bridge on one side of said centerline being disposed in a single plane, and the ends of said clip and said bridge on the other side of said centerline being disposed in two parallel planes spaced apart a distance substantially equal to the diameter of said lift cords, one of said pairs of cords being passed under the ends of said clip and being bent up over said bridge on said one side of said centerline, and the other of said pairs of cords being passed straight through said clip over the ends thereof and under said bridge, whereby said one pair of cords is prevented from slipping through said clip, and the other pair of cords is freely slidable through the clip.

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