July 5, 1932. F. C. MARSHALL ET AL 1,865,935

CORD ANCHORING DEVICE

Filed May 7, 1931

FIG. 1.

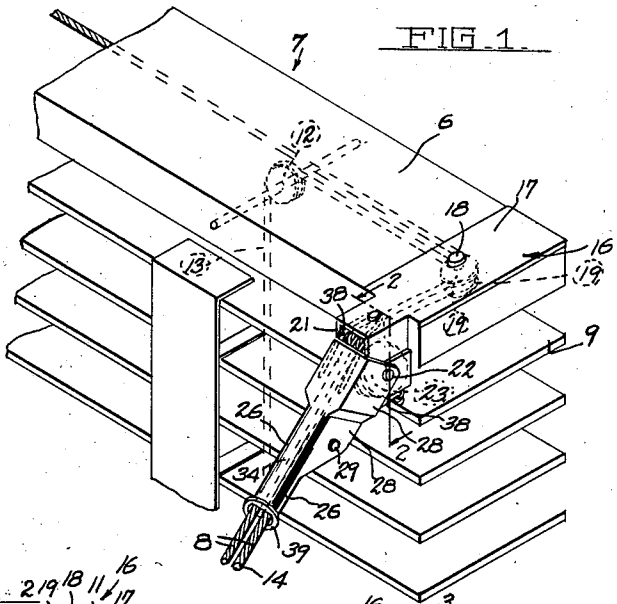


FIG. 3.

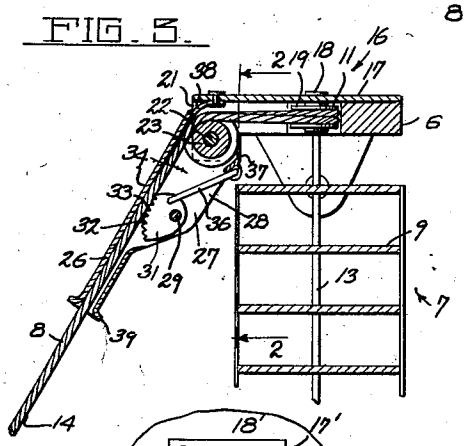


FIG. 2.

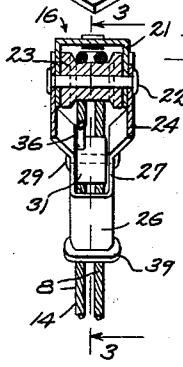


FIG. 4.

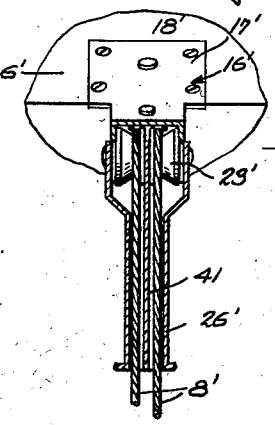
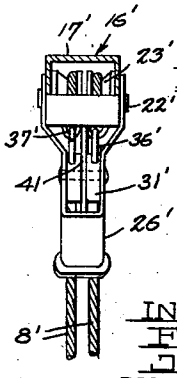


FIG. 5.



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UNITED STATES PATENT OFFICE

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CORD ANCHORING DEVICE

Application filed May 7, 1931. Serial No. 535,682.

Our invention is a cord anchoring device, and has for an object the provision of a novel and unusually efficient type of anchoring device, whereby a cord or similar element under tension may be made fast to any suitable structure in respect to which the cord has the tendency to move when released by the anchoring device. The cord anchoring device of the present invention represents an improvement over that forming the subject matter of our copending application Serial No. 454,424, filed May 21, 1930.

Another object is to provide an anchoring device which, while being particularly designed for use in anchoring the elevating cord or cords of a Venetian blind, is capable of practically universal application, inasmuch as it might be constructed in various sizes so as to accommodate cords and the like of different sizes, and to carry stresses of widely different magnitudes, it being intended that the device of the present invention shall be used to anchor cords of many different types and adapted for use in conjunction with many different structures.

A more detailed object is the provision of a cord anchoring device in which one of the two opposed jaws is in the form of a pivotally mounted tube, through which the cord or cords to be anchored extend, and which carries the other jaw, this second jaw being provided with means for swinging it toward a side of the tube so as to engage the cord or cords between itself and the said side of the tube, this movement of the other jaw being accomplished by movement of the tubular jaw.

The invention possesses other objects and advantageous features, some of which, with those enumerated, will be set forth in the following description of the invention's particular embodiments which are illustrated in the drawing accompanying and forming a part of the specification.

Referring to the drawing:

Fig. 1 is a perspective view showing the manner of installation of a cord anchoring device of our invention in conjunction with a conventional Venetian blind.

Fig. 2 is a transverse vertical sectional view taken upon the line 2—2 of Fig. 1, with the direction of view as indicated.

Fig. 3 is a longitudinal sectional view on the line 3—3 of Fig. 2, with the direction of view as indicated.

Fig. 4 illustrates a slightly modified form of our cord anchoring device, this view being a sectional view taken upon an oblique plane extending longitudinally with respect to the tubular jaw.

Fig. 5 is a transverse vertical sectional view of the device illustrated upon Fig. 4, the plane of section being taken immediately behind the forward sheaves, looking forward.

In terms of broad inclusion, the device of the present invention comprises a pair of clamping members, one of which is in the form of a jaw pivotally mounted upon the other, which in turn is pivotally upon a suitable support. The cord or cords to be anchored pass between the two members, and a tensioned portion extends therefrom on one side of the pivotal mounting of the latter member, so that the tension imposed upon the cords tends to swing the device about the axis of its pivotal mounting. The jaw which is pivotally mounted upon the other clamping member is also connected to the supporting structure in such a manner that the swinging movement of the device caused by the tension on the cords, forces the jaw toward the other member, thereby clamping the cords between the two members with a force proportional to the tension carried by the cords.

For the purpose of the present disclosure, our improved cord anchoring device has been illustrated as being applied to the head rail 6 of a conventional Venetian blind 7 and so associated therewith that it is adapted to anchor the cords 8 whereby the slats 9 of the blind 7 may be adjusted. These cords 8, of which there are usually two, extend longitudinally of the rail 6, preferably within a slot 11 therein, each cord 8 passing over a sheave 12 so that a portion 13 of the cord depends from the rail 6 and through all the slats 9 with the exception of the lowermost, to which the lower end of the portion 13 is permanently attached. Hence, by pulling the portions

13 of both cords 8 upwards, the lowermost slat may be raised, causing it to gather the slats thereabove and successively lift them, thereby decreasing the effective length of the blind. From their respective sheaves 12 the cords extend through the slot 11 to the same end of the head rail 6, whence the other ends 14 of the cords 8 hang to a position accessible to a person standing on the floor, so that by pulling upon or paying out the cords 14, that person may adjust the blind. It has been customary to provide a cleat, button, or the like, upon which the ends 14 of the cords 8 may be engaged to hold the blind in selected position. However, the device of the present invention avoids the necessity of using such cleats, by providing means for anchoring the cords 8 automatically when their lower ends 14 are released.

The embodiment of our invention which is illustrated upon Figs. 1, 2 and 3 comprises a frame 16, preferably in the form of a flat plate 17 adapted to be secured to the head rail 6. A pivot pin 18 extends vertically downwards from the plate 7 to receive a sheave 19 about which the cords 8 pass toward the forward edge of the rail 6 and between a pair of opposed parallel flanges 21 which depend from the forward end of the plate 17. A shaft 22 extends between the flanges 21, and carries a sheave 23, and the cords 8 pass over this sheave 18 also, so as to extend downwards therefrom, it being understood that the shaft 22 is horizontally disposed.

One of the elements whereby the cords 8 are gripped is in the form of a tube 26 having an opening 27 in its after side adjacent its upper end. From the sides of the opening 27 parallel flanges 28 extend, and these flanges are pivotally engaged upon the shaft 22 adjacent their upper after corners, so as to pivotally mount the tube 26 upon the frame 16. The cords 8 extend downwards from the sheave 23 through the tube 26, as clearly shown upon Fig. 3.

A jaw 31, which preferably is substantially triangular in configuration, is pivotally mounted between the flanges 28 upon a transversely extending pin 29 which extends through the jaw 31 adjacent its upper after corner. The forward face 32 of the jaw 31 is provided with serrations 33, it being understood that the cords 8 extend between the jaw 31 and the forward side 34 of the tube 26, so as to be firmly pressed therebetween when the jaw 31 moves toward the side 34 of the tube.

This movement of the jaw 31 is attained by means of a link 36, the upper end of which is pivotally connected to an extension 37 which is rigid with the frame 16. The lower end of the link 36 is pivoted to the jaw 31 adjacent the forward upper corner thereof, i. e., the axis of pivotal movement of the link 36 with respect to the jaw 31 is forward of the axis of pivotal movement of the jaw with respect to the tube whereby it is carried. Moreover, the point of attachment of the link 36 to the frame 16 is behind the shaft 22, the purpose being to cause the link 36 to be pulled upwards with respect to the tube 26 when the tube 26 rotates in a clockwise direction about the shaft 22, as viewed upon Figs. 1 and 3. This upward pull of the link 36 with respect to the tube pulls the upper forward corner of the jaw 31 in such a manner that the serrated face 32 of the jaw, which is lower than the pin 29 whereupon the jaw is pivoted, will be forced across the tube 26 toward the opposite side 34 thereof, thereby squeezing the cords 8 against the side 34.

The weight which is imposed upon the ends 13 of the cords 8 by the slats 9 continually imposes tension in an upward direction upon the portion of the cords 8 which is within the tube 26, producing the tendency for the tube 26 to be rotated about the shaft 22. As explained hereinabove, such motion of the tube 26 causes the jaw 31 to be brought into engagement with the cords within the tube 26 and to compress the cords tightly between the jaw 31 and the side 34 of the tube, thereby effectually preventing any motion of the cords within the tube until the tube is again swung back toward vertical position. Obviously, this can be accomplished merely by pulling downwards upon the dependent lower ends 14 of the cords 8, with these ends held inwards toward the frame of the window or other structure upon which the Venetian blind 7 is mounted. When the tube 26 is swung in this manner, compression will be imposed upon the link 36, forcing the jaw 31 to rotate away from the side 34 of the tube, thereby releasing the cords 8. The cords may then be permitted to slip through the tube 26, but without releasing all tension upon their lower ends, the purpose being to keep the tube 26 in vertical position until the desired adjustment of the lower edge of the blind has been attained, after which the lower ends of the cords 8 should be swung outwards so as to swing the tube 26 to locking position; or by merely releasing the tension upon the lower ends of the cords 8 the tube 26 may be swung back into locking position merely by the pull exerted frictionally thereupon by the cords themselves which tend to move within the tube. This tendency for the device to lock itself is enhanced by means of a spring 38, one end of which is secured to the frame 16 and the other end of which extends down inside the tube 26 so as to continually urge the tube 26 in clockwise rotation, as viewed upon Figs. 1 and 4.

Preferably, the lower end of the tube 26 is belled outwards slightly, as indicated at 39, so as to reduce to a minimum the tendency for the tube to cut the cords 8.

The modification illustrated upon Figs. 4 and 5 is the same as that already described,

with the exception that each of its cords 8' engages an individual jaw 31' and sheave 23' separate from the corresponding jaw and sheave associated with the other cord. Each jaw 31' is provided with a link 36' connecting it to an extension 37' of the frame 16'. Both jaws are carried by a common, pivotally mounted tube 26', through which both cords 8' extend, and preferably the tube 26' is provided with a longitudinally extending partition 41 separating the portions of the tube 26' through which the different cords 8' extend.

It is to be understood that the details of the invention as herein disclosed, are subject to alteration within the spirit or scope of the appended claims.

We claim:

1. A cord anchoring device comprising a frame having a pair of spaced flanges, a shaft extending between said flanges, a sheave journaled on said shaft, a tube having an opening at one side and at the upper end thereof, flanges extending laterally from the sides of said opening, the flanges of said tube being pivotally engaged upon said shaft, a jaw pivoted between the flanges of said tube, and means for swinging said jaw across said tube and toward the opposite side thereof when said tube swings about said pin.

2. A cord anchoring device comprising a frame having a pair of spaced flanges, a shaft extending between said flanges, a sheave journaled on said shaft, a tube having an opening at one side and at the upper end thereof, flanges extending laterally from the sides of said opening, the flanges of said tube being pivotally engaged upon said shaft, a jaw pivoted between the flanges of said tube, and a link pivoted at one end to said frame and at the other end to said jaw at a point offset from the axis of the jaw's pivotal mounting.

3. A cord anchoring device comprising a frame, a pair of spaced flanges rigid therewith at its forward end, a shaft extending between said flanges, a sheave journaled on said shaft, a tube having an opening at one side and at the upper end thereof and flanges extending laterally from the sides of said opening, the flanges of said tube being pivotally engaged upon said shaft, a pin extending between said tube flanges adjacent the after edges thereof, a jaw pivoted upon said pin, and a link pivoted at one end to said jaw forward of said pin and at the other end to said frame behind said shaft.

4. A cord anchoring device comprising a frame having a pair of spaced flanges, a shaft extending between said flanges, a sheave journaled on said shaft, a tube having an opening at one side and at the upper end thereof, flanges extending laterally from the sides of said opening, the flanges of said tube being pivotally engaged upon said shaft, a jaw pivoted between the flanges of said tube, a link pivoted at one end to said frame and at the other end to said jaw at a point offset from the axis of the jaw's pivotal mounting, and a spring urging said tube in rotary motion about said shaft.

5. A cord anchoring device comprising a frame, a pair of spaced flanges rigid therewith at its forward end, a shaft extending between said flanges, a sheave journaled on said shaft, a tube having an opening at one side and at the upper end thereof and flanges extending laterally from the sides of said opening, the flanges of said tube being pivotally engaged upon said shaft, a pin extending between said tube flanges adjacent the after edges thereof, a jaw pivoted upon said pin, a link pivoted at one end to said jaw forward of said pin and at the other end to said frame behind said shaft, and a spring urging said tube forwards in rotary motion about said shaft.

6. A cord anchoring device comprising a frame, a tube pivotally mounted thereon and having an opening in a side thereof, a jaw pivoted for movement about an axis extending across said opening, and means for swinging said jaw across said tube toward the opposite side thereof when said tube swings with respect to said frame.

7. A cord anchoring device comprising a frame, a tube pivotally mounted thereon and having an opening in a side thereof, a jaw pivoted for movement about an axis extending across said opening, and a link pivoted at one end to said frame and at the other end to said jaw to swing the jaw toward the other side of said tube when said tube swings.

8. A cord anchoring device comprising a frame, a tube pivotally mounted thereon and having an opening in a side thereof, a jaw pivoted for movement about an axis extending across said opening, and a link pivoted at one end to said frame behind the axis of pivotal mounting of the tube and at the other end to said jaw forward of its axis of pivotal mounting to swing the jaw toward the opposite side of said tube when the tube swings forward.

9. A cord anchoring device comprising a frame, a tube pivotally mounted thereon and having an opening in a side thereof, a jaw pivoted for movement about an axis extending across said opening, a link pivoted at one end to said frame behind the axis of pivotal mounting of the tube and at the other end to said jaw forward of its axis of pivotal mounting to swing the jaw toward the opposite side of said tube when the tube swings forward, and a spring urging said tube forward in pivotal movement with respect to said frame.

10. A cord anchoring device comprising a frame, a tube pivoted thereto for movement about an axis extending transversely with respect to the tube, a jaw pivoted to said tube

for movement about another axis extending transversely of the tube, and a link pivoted at one end to said frame and at the other end to said jaw and adapted to swing said jaw toward a wall of said tube as said tube swings about the axis of its pivotal mounting.

11. A cord anchoring device comprising a frame, a tube pivoted thereto and adapted to receive a cord extending therethrough, a jaw pivoted within said tube, and a link pivoted to said frame and to said jaw and adapted to swing said jaw toward a wall of said tube to engage said cord therebetween when said tube swings about the axis of its pivotal mounting.

12. A cord anchoring device comprising a frame, a tube pivoted thereto and adapted to receive a cord extending therethrough, a jaw pivoted within said tube, a link pivoted to said frame and to said jaw and adapted to swing said jaw toward a wall of said tube to engage said cord therebetween when said tube swings in one direction about the axis of its pivotal mounting, and a spring urging said tube to rotate in the opposite direction.

13. A cord anchoring device comprising a frame, a clamping member pivotally mounted thereupon, a jaw pivoted to said member, a cord extending between said jaw and said clamping member, a portion of said cord under tension extending from said clamping member on one side of the axis of pivotal mounting of the member, and a link pivoted to said frame and to said jaw and adapted to swing said jaw toward said member to engage said cord when the member swings in the direction of said tension.

In testimony whereof we have signed our names to this specification.

FRED C. MARSHALL.
JOHN L. NEWPORT.