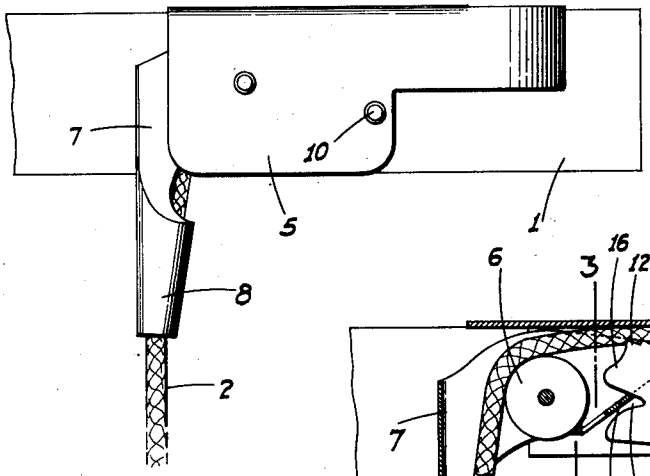
Aug. 6, 1935. M. L. WIENER ET AL 2,010,286

VENETIAN BLIND LOCKING MECHANISM

Filed April 23, 1935

Fig. 1



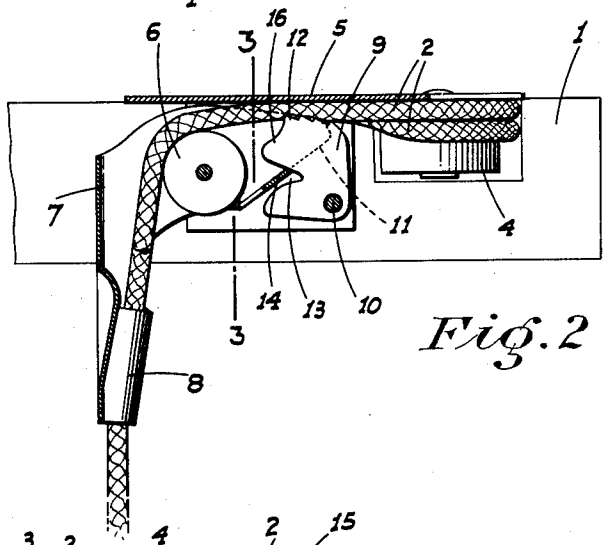
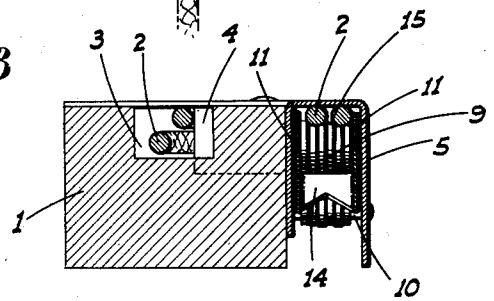


Fig. 2

Fig. 3



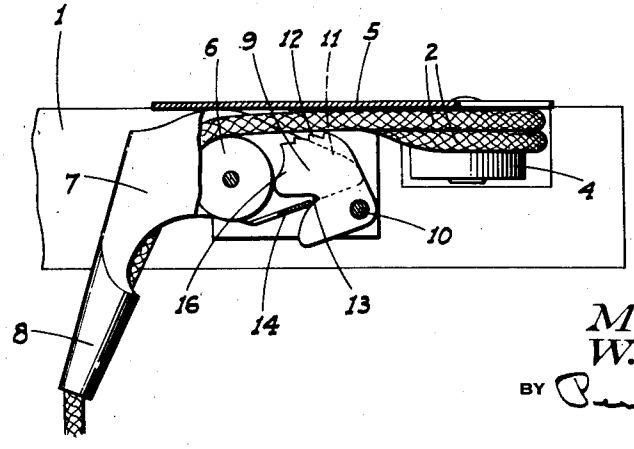


Fig. 4

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VENETIAN BLIND LOCKING MECHANISM

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6 Claims. (Cl. 156—17)

This invention relates to Venetian blinds and is directed particularly and specifically to a cord locking mechanism and is an improvement over the cord locking device disclosed in the Paul E. Joseph application for United States patent on Venetian window shades, filed May 7, 1934, Serial No. 724,298.

The principal object of our invention is to provide an exceedingly effective cord gripping structure comprising essentially a plurality of separate and independent cord gripping dogs loosely mounted on a common shaft in order that each separate dog may move into positive engagement with the adjacent cord without any dependency on the position of the other remaining dogs.

An additional object of this invention is to provide a positive means to simultaneously move all of the separate dogs up to an initial engagement of the teeth of the dogs with the cords and then to allow each separate dog to move further into engagement with the periphery of the adjacent cord without restriction as the cord tends to move past the dog in order to assure a maximum gripping and locking of said cords.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a front elevation of our improved cord locking device as mounted on a Venetian blind head rail.

Figure 2 is a front elevation with the housing broken away and illustrating the device in a cord gripping position.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a front elevation with the housing broken away and illustrating the device in an inoperative or released position.

Referring now more particularly to the characters of reference on the drawing, the numeral 1 denotes the head rail of a Venetian blind unit along which the blind raising and lowering cords 2 extend in a longitudinal groove 3 as usual. These cords 2, after extending along the groove 3 towards one end of the head rail, pass about a direction changing pulley 4. This is mounted with its axis vertical on and is arranged to deflect the cords into a housing 5 secured to the outer face of the head rail 1 at said one end. The cords then extend a short distance within the housing toward the opposite end of the head rail exteriorally of the same and within the housing 5. The cords 2 then pass over a transversely disposed pulley 6 mounted in the housing 5 and depend downward to a termination in a common pull knob adjacent the lower portion of the blind (not shown).

The cord locking mechanism which is the subject to which the present invention is directed is mounted in connection with the housing 5 and is constructed as follows:

A hollow inverted L shaped arm member 7 straddles the roller 6 and is pivoted intermediate its ends in the housing 5 in common with the roller 6. The lower vertical portion of the arm depends from the end of the housing opposite from the pulley 4; the cords 2 projecting through the arm and passing through guide sleeves 8 formed on the lower end of said arm.

Disposed in the housing 5 between the pulley 4 and the roller 6 is a plurality of individual and separate cord engaging dogs 9 pivoted at their lower ends on a transverse pin 10 in the housing; said dogs projecting upwardly and slightly toward the roller 6 and fitting loosely between the adjacent side portions 11 of the arm 7.

These dogs 9 are separately and loosely mounted on the pin 10 for the purpose as will hereinafter appear.

Each individual and separate dog is shaped so that its upper edge is slightly convexly curved in and eccentric to the pin 10 in the direction of the blind raising movement of the cords, such edge being formed with cord engaging teeth 12 which face in the same direction.

Each dog is also formed with a deep notch 13 opening in the direction of the roller 6. Formed with the arm 7 is a cross bar 14 which permanently engages in the notches 13 of all the dogs.

In operation this improved Venetion blind cord locking device is actuated exactly as described in the above referred to United States patent application. However the manner in which the cords are locked against movement is substantially different in the present case.

To positively cause the dogs to engage the cords and grip or bind the same against the upper portion of the housing, the arm 7 is moved from the position illustrated in Figure 4 to the position illustrated in Figure 2 by moving the cords sideways or laterally of the blind and window. Such movement of the arm causes the cross bar 14 to engage the upper surface of the notch 13 in each dog and to move all the dogs simultaneously into engagement with the cords 2. The teeth 12 on the dogs at once bite into the cords and as the operator releases his hold on the cords and they tend to be drawn in a blind lowering direction by the weight of the blind, the teeth are drawn in firmer and more positive engagement with the cords further binding them against movement in such direction.

As such final binding or clamping engagement occurs, the toothed edges of the individual and

separate dogs engage at different points about the periphery of the two cords and each dog is drawn into a positive engagement with the adjacent cord regardless of its relative lateral alinement to the other dogs. This feature is exceedingly important and is illustrated in Figure 3 of the drawing. Each one of the separate dogs becomes a positive individual clamping means, conforming itself in position according to the contour of the corresponding portion of the cord, and in no way depends on the positioning of the other dogs. The numeral 15, Figure 3, illustrates one of the dogs which has moved into contact with the cords without restriction from the remaining dogs.

The advantage of this construction is readily apparent over the single dog illustrated in the aforementioned United States patent application wherein the upper surface of the dog only partially came into contact with the cords due to the fact that the dog was solid and did not comprise seperate relatively thin dogs as now disclosed.

Also, due to the fact that the dogs are loosely mounted on the pin 10, the dogs may move slightly in a lateral position as they clamp the cords. This prevents binding between adjacent dogs and allows each to move up against the cord without restriction.

The side portions 11 of the arm 7 project on either side of the series of dogs in order to keep the outer dog on each side from accidentally jamming between the side of the arm and the housing.

When it is desired to unlock the device, the depending cords 2 are moved sideways in a direction to cause the arm 7 to move away from the vertical position for locking. This causes the cross bar 14 to engage the lower surface of the notches in each dog and draw the same away from the cord clamping position each had assumed.

The dogs are formed with a rounded portion 16 which extends towards the roller 6 and engages the same when the arm 7 has moved a sufficient distance in an unlocking direction. This limits the lowering of the dogs and prevents accidental displacement of the cross bar 14 from the notches 13 which could occur if the dogs were unrestricted in their downward movement.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described our invention, what we claim as new and useful and desire to secure by Letters Patent is:

1. Locking means for the cords of a Venetian blind, comprising a fixed housing through which the cords project adjacent one wall thereof, a plurality of separate dogs pivoted in common in the housing and arranged, when turned on their pivot in the direction of a blind lowering movement of the cords, to frictionally engage said cords and clamp them against said wall of the housing, and means mounted in the housing to thus move all said dogs simultaneously without interfering with further movement of the dogs individually.

2. Locking means for the cords of a Venetian blind comprising a fixed housing through which the cords project adjacent one wall thereof, a plurality of separate dogs in the housing, a single pin in the housing on which said dogs are loosely pivoted, said dogs projecting toward the side of the cords opposite said wall of the housing and adapted, when turned on their pivot in the direction of a blind lowering movement of the cords, to engage the cords and clamp the same against said wall, and means to thus turn all said dogs simultaneously without interfering with further individual movement of the dogs in the same direction.

3. Locking means for the cords of a Venetian blind comprising a fixed housing through which the cords project adjacent one wall thereof, a plurality of separate dogs in the housing, a single pin in the housing on which said dogs are loosely pivoted, said dogs projecting toward the side of the cords opposite said wall of the housing and adapted, when turned on their pivot in the direction of a blind lowering movement of the cords, to engage the cords and clamp the same against said wall, a lever pivoted in the housing on an axis parallel to the dog pivot and a cross bar on the lever offset from its pivot, said dogs having a substantially V shaped notch into which said cross bar loosely projects.

4. Locking means for the cords of a Venetian blind comprising a fixed housing through which the cords project adjacent one wall thereof, a plurality of separate dogs in the housing, a single pin in the housing on which said dogs are pivoted, said dogs projecting toward the side of the cords opposite said wall of the housing and each having a cord engaging face eccentric to the pivot pin to engage the cords and clamp the same against the said wall of the housing with the turning of the dogs in the direction of a blind lowering movement of the cords and with a pressure proportionate to the amount of such turning, and means to thus turn all said dogs simultaneously without interfering with further individual movement of the dogs in the same direction.

5. Locking means for the cords of a Venetian blind comprising a fixed housing through which the cords project adjacent one wall thereof, a dog unit pivoted on the housing and arranged, when turned on its pivot in the direction of a blind lowering movement of the cords, to engage and clamp the cords against said wall of the housing, a lever pivoted in the housing on an axis parallel to that of the dog unit, and a cross bar on the lever offset from its pivot, the dog unit having a substantially V shaped notch in one side into which said cross bar projects.

6. Means to lock a cord against movement in one direction comprising a fixed surface adjacent which the cord passes, a plurality of separate dogs extending transversely of the cord, a pivot for said dogs disposed in a plane at right angles to the cord and fixed with said surface, said dogs being arranged, when turned on their pivot in said one direction, to engage and clamp the cord against said surface, and means mounted in connection with said fixed surface to thus move all said dogs simultaneously without interfering with further movement of the dogs individually.

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