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LOCKING MECHANISM FOR VENETIAN BLINDS

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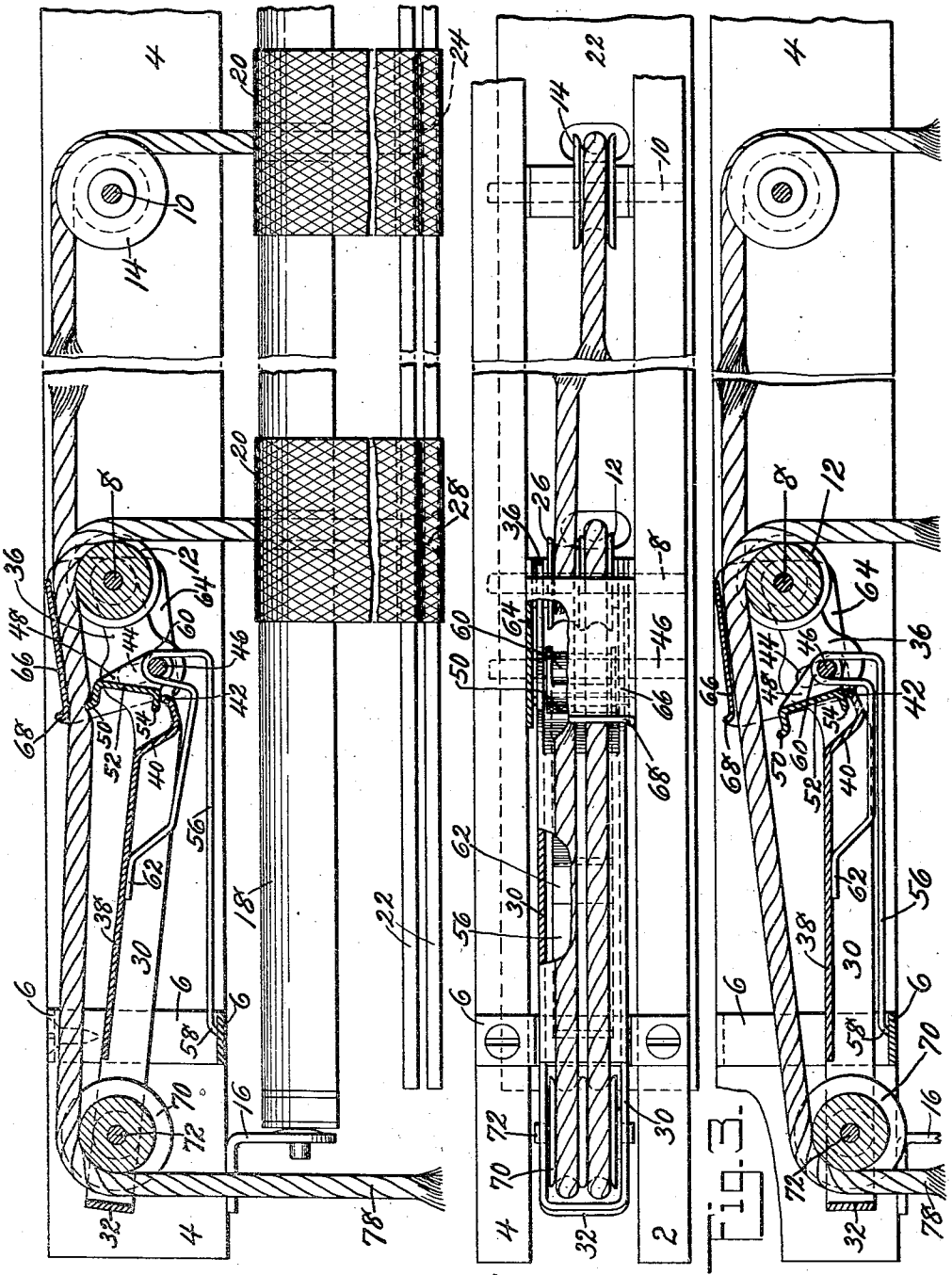

Fig. 1.

Fig. 2.

Fig. 3.

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LOCKING MECHANISM FOR VENETIAN BLINDS

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8 Claims. (Cl. 156—17)

This invention relates to Venetian blinds in general and in particular to locking means for the operating cords of the Venetian blinds.

Previous operating means for Venetian blinds have been extremely cumbersome and not positive in their locking action, the more common form of operating means consisting merely of the lift cords which in order to hold the blind must be wrapped around the locking projection, fastened to the window frame. Other types of semi-automatic cord fastening means have been provided but this required a definite operation on the part of the operator before the cord would be locked. It is an object, therefore, of this invention to provide a cord locking means which is fully automatic.

Another object of the invention is the provision of a cord locking means which will retain the blinds in any position without requiring a conscious effort on the part of the operator.

A further object of the invention is the provision of a spring actuated locking means which positively grips the cord at all times unless tension is applied to the loose or operating end.

This as well as other objects of the invention will be apparent to those skilled in the art from a study of the following description and accompanying drawing, in which:

Figure 1 is a sectional view of an upper portion of the blind with the improved locking mechanism applied;

Fig. 2 is a plan view of a portion of the blind, and

Fig. 3 is a sectional view similar to Figure 1 but showing the mechanism in released position.

Referring now to the drawing in detail, it is seen that only portions of the blind have been shown which are necessary for an understanding of the invention. The blind is of conventional form having top side pieces 2 and 4 joined together at intervals by means such as straps 6 and these side pieces carry the pins 8 and 10 on which the cord supporting pulleys 12 and 14 respectively are journaled. Attached to these side pieces by clips 16 (only one of which is shown) is the top bar 18 to which is attached the customary web straps 20 supporting and positioning the slats 22. The operating cord 23, which if desired may be continuous, has one end attached as at 24 to the bottom slat, while the intermediate portions of the cord pass over supporting pulley 14 and an idler pulley 26 journaled on the pin 8. The other end of the cord 23 is attached as at 28 to the lower bar or slat and extends upwardly over supporting roller 12 which, as previously mentioned, is journaled on pin 8. The portion of the blind just described is of conventional and well known construction and operation. If desired, pulleys 12 and 26 may be made as a single unit, or in other words, a double pulley.

The improved locking means disclosed herein consists of an operating arm having side pieces 30 joined together at one extremity by cross member 32, while the other extremity 36 is pierced and pivotally mounted upon pulley supporting pin 8. The side portions of this operating arm are also joined by means of intermediate plate-like portion 38 having a downwardly and inwardly directed end portion 40 terminating in a dog actuating portion in the form of a rounded lip 42. Adjacent this lip portion the side pieces are pierced and provided with an elongated slot 44 curved substantially concentric with the pin 8 and adapted to permit movement of the arms relative to a pin 46 supported by the side members. The operating arm just described may be formed in any desired manner, such as pressing, casting or welding together of various plates as is obvious.

Pivotally mounted upon supporting pin 46 by spaced ears or lugs 48 is a locking dog having an upwardly directed cord engaging lip 50 and a downwardly directed web portion 52 terminating in a flange 54 adapted to be engaged by the previously mentioned operating lip 42. Flat spring 56 has one end portion 58 resting on the cross bar 6 and an intermediate portion 60 resting upon the supporting pin 46 between the spaced ears 48 of the locking dog, while the other end 62 of the spring engages the flat intermediate portion of the operating arm. It is thus seen that the spring constantly urges the operating arm upwardly but that the locking dog is free to rotate slightly on the supporting pin 46.

In order to provide a surface against which the cords may be bound a cord guide or housing member has been provided having side portions 64 joined together by a web or top portion 66. This guide or housing member is arranged adjacent the side pieces and is mounted upon fixed pins 8 and 46, thereby being immovably positioned. The cords passing over pulleys 12 and 26 will always lie closely adjacent the web portion 66 and extend therefrom outwardly past guide lip 68 formed on said housing member, to a double pulley 70 which is journaled on pin 72 supported by the side pieces of the operating arm adjacent cross piece 32. The cords, after passing over this

double pulley, are directed downwardly and their free or operating end 78 will hang free adjacent the window casing or trim.

The operation of the device is as follows: Assuming the mechanism to be in the normal position shown in Fig. 1, the operator desiring to either raise or lower the slats merely grips the cord ends 78 and applies tension thereto which will lower the operating arm to the position shown in Fig. 3 causing lip 42 to move downwardly away from flange 54 of the locking dog. During this operation a slight shift in the cord will have taken place freeing the lip 50 of the locking dog from the cord, and permitting the dog to drop to the position shown in Fig. 3. With the parts in the position as shown in Fig. 3 the slats may be raised or lowered as desired by the operator and immediately upon release of tension on the free ends 78 of the cords, the spring 56 will lift the operating arm causing lip 42 to rotate the operating dog upwardly into such a position that lip 50 is forced into engagement with the cord thus stopping any further movement of the cord. It is to be noted that the cord engaging lip 50 will always be to one side of the supporting pin 46 thus causing a tightening of the dog upon the cord due to the weight of the slats. It is also to be noted that to lock the cord requires no conscious effort on the part of the operator since a mere release of the tension in the cord, whether this be intentional or accidental, will cause an immediate locking of the cord retaining the slats in position.

While the device has been described in more or less detail, it is obvious that various modifications and rearrangement of parts will suggest themselves to persons skilled in the art, but such modifications and rearrangements are contemplated as fall within the scope of the following claims.

What is claimed is:

1. Locking means for a supporting cord of a Venetian blind comprising, a fixed element adjacent which the cord passes, a locking dog journaled adjacent the cord and movable to wedge the cord against the fixed element, an operating arm for moving said dog into cord wedging position, said arm having cord supporting means remote from the dog and being so formed and arranged that tension applied on the free end of the cord will release said locking dog, and resilient means operable upon release of the tension to shift the operating arm to move the dog into cord wedging position.

2. Locking means for the supporting cords of a Venetian blind comprising, a fixed housing through which the cords project, a locking dog journaled within the housing and adapted to wedge the cord against the housing, cord supporting means journaled on a shaft extending through the housing, an operating arm pivoted on said shaft, a pulley carried by said arm providing a support for a portion of the cord, means on said arm engageable with said dog to move the same into cord engaging position, and resilient means constantly urging said operating arm toward dog operating position.

3. Locking means for the supporting cord of a Venetian blind comprising, a fixed cord guide, a locking dog adapted to wedge the cord against said guide, a pivotally mounted operating arm having means engaging said dog to normally retain the latter in cord wedging relation, a pulley carried by the arm for supporting the cord, said pulley being so arranged that tension exerted on said cord will shift the arm to release the dog from its wedging relation with the cord, and resilient means acting against said arm to constantly urge the dog into cord wedging position.

4. Locking means for a supporting cord of a Venetian blind comprising a fixed element adjacent which the cord passes, a locking dog movable to wedge the cord against the fixed element, an operating arm for moving said dog into cord wedging position, said dog being journaled adjacent the cord on a shaft passing through said arm, said arm being so formed and arranged as to be movable relative to said shaft and having cord supporting means remote from the dog whereby tension applied on the free end of the cord will release said locking dog, and resilient means operable upon release of the tension to shift the operating arm to move the dog into cord wedging position.

5. Locking means for a supporting cord of a Venetian blind comprising a fixed element adjacent which the cord passes, a locking dog having spaced ears journaled adjacent the cord and movable to wedge the cord against the fixed element, an operating arm for moving said dog into cord wedging position, said arm being so formed and arranged with relation to said dog as to pass between the ears thereof, and resilient means constantly urging said operating arm into the dog moving position to retain the cord in wedged position.

6. Locking means for a supporting cord of a Venetian blind comprising a fixed element adjacent which the cord passes, a locking dog movable to wedge the cord against the fixed element, and an operating arm for releasing said dog from cord wedging position, said dog being journaled adjacent the cord and bridging said arm, said arm supporting the cord at a point remote from the dog and being so formed and arranged with relation to said dog as to be automatically operable upon application of a pull on the cord to release said dog.

7. Locking means for a supporting cord of a Venetian blind comprising a fixed element adjacent which the cord passes, a locking dog movable to wedge the cord against the fixed element, an operating arm for releasing said dog from cord wedging position, said dog being journaled adjacent the cord on a shaft passing through said arm, said arm being so formed and arranged as to be movable relative to said shaft and supporting a portion of the cord and being automatically operable upon application of a pull on the cord to release said dog, and resilient means automatically operable to move said arm and dog into cord wedging position upon release of the cord.

8. Locking means for the supporting cord of a Venetian blind comprising a fixed housing through which the cord projects, a locking dog journaled on a shaft in said housing and movable to wedge the cord against the housing, and an operating arm for moving said dog into cord wedging position, said arm being formed with a slot through which said shaft passes and being automatically operable upon release of tension in the free end of the cord to move said dog to cord wedging position.

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