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3,221,802

LOCKING DEVICE FOR LIFT CORDS OF A VENETIAN BLIND

Filed June 26, 1961

2 Sheets-Sheet 1

FIG. 1

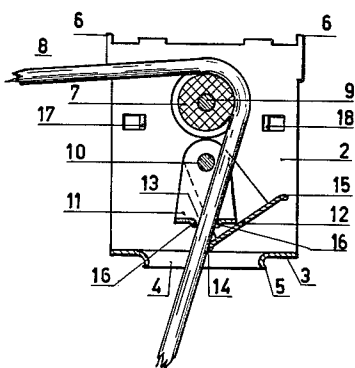


FIG. 2

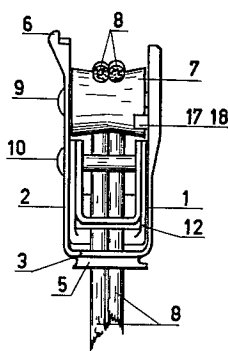
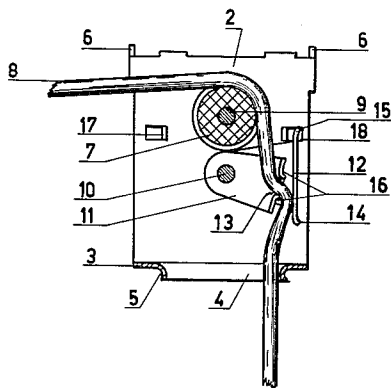


FIG. 3



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FIG. 4

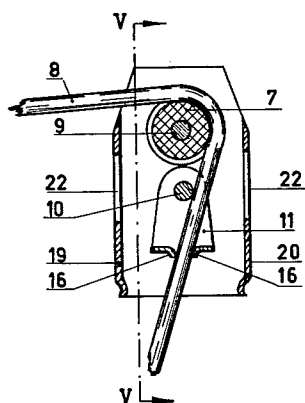


FIG. 5

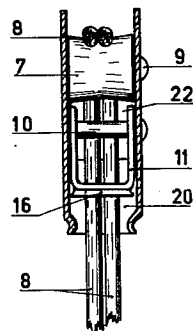
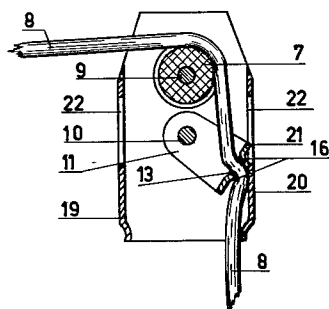


FIG. 6



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## LOCKING DEVICE FOR LIFT CORDS OF A VENETIAN BLIND

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2 Claims. (Cl. 160—173)

This invention relates to a locking device for lift means, such as for example lift cords and lift tapes of a Venetian blind, a curtain or the like, said locking device comprising a housing, at least one pivotal locking member for the cords and at least one guiding roller for the lift means, the locking member co-operating with a wall of U-shape and having a slot in the portion connecting the legs of a U and aims at providing a locking device of this type with which the lift cords may always be firmly and safely locked.

This is accomplished by the locking device according to the invention in that the locking member comprises at least along one of the slot edges a lip pointing towards the wall with which the locking member co-operates. This lip has only a narrow head rim so that consequently locally a great force may be exercised on the lift cords or lift tapes. According to the invention the or each lip may be bent out of the material of the locking member which material must be punched out for forming the slot in the locking member.

According to the invention the or each lip may co-operate with a stationary wall as well as with a movable wall.

When the or each lip co-operates with a stationary wall, said stationary wall is, according to the invention, preferably so constructed that it extends only along a part of the path of the locking member which lies below the path followed by the portion of the locking member located above the slot. Thus the advantage is obtained that the edge of the lip which must lock the lift means may be located close to the wall co-operating therewith and in a position lying below the horizontal position of the locking member. In this way a considerable clamping effect is obtained since the lift means tend to pivot the locking member still farther when the latter has already reached the position in which the lift means are already firmly locked.

The wall or walls co-operating with the locking member may be formed by partitions provided in the housing of the locking device as well as by a side wall or the side walls of the housing itself. In the latter case it is preferred to provide in this side wall or in these side walls a recess allowing the portion of the locking member located above the slot to pass therethrough.

If the or each lip co-operates with a movable wall, it is preferred to arrange this wall pivotally about the shaft fixed in the housing. This movable wall may be formed by the wall connecting the legs of the U-shaped clip. This clip may be simply and cheaply manufactured from sheet metal.

A preferred embodiment of the locking device according to the invention is characterized in that one or more abutments are provided for defining the final position or final positions of the movable wall. These abutments may consist of lips punched out of the wall of the housing.

On account of the fact that for locking the lift means a movable wall is provided which co-operates with the locking member, the advantage is obtained that the housing of the locking device according to the invention may be U-shaped in cross-section. Consequently this may be very cheap to manufacture.

According to the invention the locking member and the movable wall may be pivotally mounted on a shaft fixed in the housing, said shaft being located at such distance from the shaft of the or each guiding roller that in both extreme positions of the locking device and the movable wall, said locking member and said movable wall cannot get between the guiding roller and the walls of the housing.

The invention will be further explained below with reference to the accompanying drawings showing by way of example two embodiments of the locking device according to the invention.

FIG. 1 shows a longitudinal section of this embodiment in which the parts thereof are in the position in which the lift means are not locked.

FIG. 2 is a side view of this embodiment.

FIG. 3 shows a longitudinal section of this embodiment in which the parts thereof are in the locking position.

FIG. 4 shows a longitudinal section of the second embodiment in which the locking member is in the inoperative position.

FIG. 5 is a section on the line V—V of FIG. 4.

FIG. 6 shows a longitudinal section of the second embodiment in which the locking member is in the operative position.

The locking device shown in the drawings comprises a housing of U-shaped cross-section, of which the legs form the front wall 1 and the rear wall 2 respectively, whilst the portion connecting the legs 1 and 2 forms the bottom 3. The bottom 3 has a hole 4 which is provided round about with a collar 5 fitting in a hole in the bottom of a head rail (not shown) of a Venetian blind. The front wall and the rear wall of the housing are provided with lips 6 which are in engagement with the bent edges of such a head rail. As a consequence thereof it is easy to mount the locking device firmly in place in such a head rail.

Between the front wall 1 and the rear wall 2 there is provided a guiding roller 7 for the lift cords 8 coming from the Venetian blind. These lift cords are passed through a hole 4 in the bottom 3 of the housing. The guiding roller 7 is freely rotatable about a shaft 9 which is secured with its ends in the front wall and the rear wall of the housing. The roller 7 is of such length that the lateral faces thereof are substantially in contact with said front wall and rear wall. Consequently there is no risk of the lift cords 8 getting between the lateral faces of the roller 7 and the front wall 1 and the rear wall 2 of the housing and at the same time this offers the possibility of guiding a large number of lift cords over this roller.

Furthermore, in the housing there are pivotally mounted on a shaft 10 arranged in said housing below the shaft 9 a locking member 11 and a movable wall 12 co-operating therewith. The shafts 9 and 10 hold the walls of the housing 1 and 2 firmly together so that no other means are required to obtain a firm unit. Consequently the side walls of the housing may be omitted.

The locking member 11 consists of a U-shaped clip of which the connecting portion between the legs has a slot 13 allowing the lift cord 8 to be passed therethrough. In the drawing these lift cords extend past the edge 14 of the movable wall 12 which is slightly bent in order not to form a sharp edge which might damage the lift cords. Should the lift cords 8 not extend from the left but from the right, then these cords would come past the edge 15 of the movable wall 12. As is apparent from the drawing the locking member 11 has at two opposite edges of the slot 13 lips 16 pointing towards the movable wall 12. These lips 16 clamp the lift cord 8 firmly against

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the movable wall 12 which is slightly bent in order not the position shown in FIG. 3.

The movable wall 12 is formed by the connecting portion of a U-shaped clip.

The housing further comprises two abutments 17, 18 bent out of the housing walls 1 and 2, said abutments defining the final positions of the movable wall 12.

The device described above operates as follows:

When the device is in the position shown in FIG. 1, the free ends of the cords 8 have been pulled down. These take along the locking member 11 until starting from the position shown in FIG. 3 it assumes the position shown in FIG. 1. The movable wall 12 swings along downwards on account of its weight. The lift cords 8 then freely pass through the slot 13 in the locking member 11 so that one may raise or lower the Venetian blind.

When the Venetian blind has reached the desired position the cords 8 are released. These cords take along the locking member 11 and the movable wall 12 until said movable wall reaches the abutment 18 and cannot be pivoted farther upwards. The lift cords 8 take the locking member 11 farther along until the locking position shown in FIG. 3 is reached.

If the lift cords 8 would arrive from the left the same takes place. As already stated above the cords 8 then extend past the edge 15 of the movable wall 12. In that case the abutment 17 serves to limit the movement of said movable wall 12.

FIGS. 4-6 show an embodiment in which the lips 16 cooperate with the side walls 19, 20 of the housing. Those parts of this embodiment of the locking device which correspond with the parts of the locking device according to FIGS. 1-3 are designated by the same reference numerals.

In order to prevent the point 21 of the locking member 11 from touching the wall 20 of the housing so that consequently the distance from the lower lip 16 of the locking member 11, which must lock the cords 8, would be too large, there is provided in said wall an opening 22 through which the upper portion of the locking member 11 may pass. A similar opening 22 is provided in the side wall 19.

The embodiment shown in the FIGS. 4-6 mainly operates in the same way as the embodiment according to FIGS. 1-3. The only difference is that in the case of the embodiment according to FIGS. 4-6 the lift cords 8 are pressed by a lip 16 against the stationary wall of the housing 20 instead of against the movable wall 12.

It is apparent from FIGS. 3 and 6 that the locking member 11 in its locking position has not yet reached the horizontal position. Consequently the weight of the Venetian blind tries to pivot this locking member still farther thus always ensuring a firm locking of the lift cords.

It is obvious that the above-described locking device may also be so constructed that thereby only lift means always coming from one and the same direction may be locked. In that case it is only necessary for the housing to have one side wall and the locking member 11 need only have one lip. In the locking device according to FIGS. 1-3 the movable wall may then be smaller. Furthermore various modifications may be made without departing from the scope of the invention. For

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example also two or more locking members and/or two or more guiding rollers may be accommodated in the housing.

I claim:

1. A locking device for use with the lift means of a Venetian blind and the like for releasably locking at least one tensioned lift means, comprising in combination, a housing having a pair of spaced side walls and at least one end wall extending between and fixed to said side walls, at least one guide roller between and carried by said side walls, said guide roller having an axis substantially perpendicular to said side walls, and at least one locking member between and carried by said side walls for free turning movement around an axis directly beneath the axis of said guide roller, said locking member being U-shaped and having a web portion connecting the ends of its legs, said web portion being provided with a slot adapted to receive the lift means, at least one edge of said slot being provided with a lip pointing towards said end wall of the housing with which said locking means co-operates, said end wall of the housing being provided with an opening located to allow the portion of the locking member located above its slot to pass therethrough, whereby to clamp the lift means between the edge of the slot and the portion of the end wall subjacent said opening.

2. A device, adapted to be used in Venetian blinds and the like, for releasably locking at least one tensioned cord, comprising, in combination, a supporting bracket having a pair of spaced side walls and at least one end wall extending between and fixed to said side walls, an elongated guide extending between and carried by said side walls, said guide having an axis substantially perpendicular to said walls, and a locking member located between and carried by said side walls for free turning movement around an axis located directly beneath the axis of said guide, said locking member having distant from its turning axis a web portion formed with a slot adapted for passing the tensioned cord therethrough, at least one edge of said slot being provided with a lip pointing towards said end wall, and said locking member assuming a locking position with said member being turned upwardly from its lowermost position through an angle substantially less than 90° and in said position said member having its lip located close enough to said end wall of the bracket to grip between said lip and said end wall at least one cord which passes through the slot of the locking member and around said guide.

#### References Cited by the Examiner

##### UNITED STATES PATENTS

764,047	7/1904	French	160—178
2,115,623	4/1938	De Tepla	160—178
2,175,977	10/1939	Stuber et al.	160—178
2,516,969	8/1950	Fettig	188—65.1 X
3,040,403	6/1962	Viol et al.	24—134

##### FOREIGN PATENTS

452	1874	Great Britain.
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