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LOCKING DEVICE FOR LIFT MEANS, SUCH AS FOR EXAMPLE
LIFT CORDS OR LIFT TAPES OF A VENETIAN
BLIND, A CURTAIN OR THE LIKE
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FIG. 1

FIG. 2

FIG. 3

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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 and at least one guiding roller means, the locking member being U-shaped and including opposing legs joined by a connecting portion which is provided with a slot for the cords of the blind. This known device has the disadvantage that in the symmetrical embodiment thereof adapted to be used both at the right hand side and at the left hand side of a Venetian blind or curtain, the locking member may only have small dimensions because it should be capable of pivoting between the side walls of the housing. Moreover it must be located at a relatively large distance from the side walls since otherwise the ends thereof cannot move past the side walls of the housing. As a consequence thereof in the locking position the wall connecting the legs of the U-shaped locking member must extend parallel to the corresponding wall of the housing, so that the lift cords are locked between two surfaces located at a relatively large distance from each other thus entailing the disadvantage that the cords are not satisfactorily locked. On account of the fact that the locking member must pivot over a large angle before assuming its locking position the disadvantage is created that a Venetian blind which has been raised to a given height goes down again over some distance before the locking member has reached its locking position.

The above-mentioned disadvantages are avoided by the locking device according to the invention in that in the housing there is provided for the or each locking member a wall preferably movable between two final positions, said wall being located at such a distance from the locking member that the lift means may be locked between said movable wall and said locking member. Since a movable wall is applied this wall may move independently of the locking member as long as the locking position has not been reached. As a consequence thereof the active portion of the locking member may be located close to the movable wall. Moreover, the locking member may already become operative before it has reached the horizontal position so that a strong locking action is obtained since the cords tend to pivot the locking member farther after the latter has reached the position in which the cords are already firmly clamped.

According to the invention the movable wall is preferably pivotally mounted in the housing.

For defining the final positions of the locking member the locking device may be provided with abutments which for example may have the shape of lips bent out of the wall of the housing.

According to the invention the movable wall may be formed by the portion connecting the legs of the U-shaped clip thereinto. This clip may simply be and cheaply manufactured from sheet metal.

A preferred embodiment of the locking device according to the invention is characterized in that the or each U-shaped locking member is provided with one or two lips pointing towards the movable wall and being bent out of the material of the locking member.

As a result of the fact that for locking the lift means there is provided a movable wall co-operating with the locking member the advantage is obtained that the housing is U-shaped. Consequently this housing may be very cheap to manufacture. According to the invention the locking member and the movable wall may be rotatably mounted on a shaft fixed in the housing, said shaft being located at such a distance from the shaft of the or each guiding roller that on both extreme positions of the locking member and the movable wall said locking member and said movable wall cannot get between said 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.

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 or 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 the movable wall 12 when the locking member assumes the position shown in FIG. 3.

The movable wall 12 is formed by the connecting por
tion of a U-shaped clip which comprises a second locking member.  

The housing further comprises two abutments 17, 18 bent at 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 positions 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. It will be noted that upon release of the cords 8 the locking members function automatically to lock said cords without the necessity of the operator performing any special movement directed to the locking members.

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.

It appears from the drawings that the locking members 11 in the locking position shown in FIG. 3 has not yet reached the horizontal position. The weight of the Venetian blind thereby tends to rotate said locking member still farther so that consequently a firm locking of the lift cords is always ensured. According to the invention also a locking member without lips may be applied.

It is obvious that the invention is not restricted to the embodiment described above and shown in the drawings but that it may be modified in various ways without departing from the scope of the invention.

I claim:

1. A locking device for lift means such as cords and tapes of window blinds, said locking device operating to automatically lock said lift means when said lift means is released by a person and comprising a housing, pivot means mounted in said housing, first and second generally U-shaped locking members having sides and a bottom wall connecting said sides, said first member being pivotally mounted on said pivot means about an axis extending transversely through said sides of said first member, said second locking member being pivotally mounted about an axis extending transversely through said sides of said second locking member, said first and second locking members being pivotable in the same plane with the bottom wall of said first locking member inscribing an arc radially inward from the arc inscribed by the bottom wall of said second locking member, the bottom wall of said first locking member comprising a through opening adapted to receive therein a lift means, the space between said arc being such that said first and second locking members are adapted to clamp a lift means between the respective said bottom walls with said bottom walls being substantially parallel to each other, a lift means guide mounted in said housing and adapted to guide a lift means through said housing.

2. The locking device of claim 1, said opening in said first locking member comprising a circumferential lip extending outwardly towards the bottom wall of said second locking member.

3. The locking device of claim 1, wherein said first and second locking members are coaxially pivoted.

4. The locking device of claim 1, including stop means for limiting the pivotal motion of said second locking member.

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