WASHINGTON BLIND OR CURTAIN, PARTICULARLY FOR TWO-PANE INSULATING GLASS WINDOW
FENSTERJALOUSIE ODER VORHANG, INSSEONDERE FÜR ZWEISCHEIBENISOLATIONSGLASFENSTER
STORE OU RIDEAU POUR FENETRE, EN PARTICULIER POUR FENETRE A DOUBLE VITRAGE ISOLANT

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Description

The invention concerns a sealed insulating glass unit with double glass panes for a window and comprising a window blind installed between the glass panes, the blind being provided with a cord drive system or the like, operable to position the blind in desired position in the unit, wherein the cord drive system is connected to a laterally arranged, longitudinal support shaft positionned in a housing. Such a unit is described in DE-A-3.904.763. The invention can be utilized for venetian blinds as well as for pleated blinds.

The unit described in the aforementioned publication has a cord drive system powered by an electric motor provided at one end of the housing and requiring wires that needs to be connected to a source of electric power and to control means. The cord is wound up on discs or rollers that take up space. In in this and other proposals, one has therefore mounted the cord drive mechanism in special housings, which are positioned below the spacer element in the window. A drawback with such solutions is, however, that the effective light area in the window thereby is reduced.

To make various types of blinds designed for mounting between two fixedly mounted glass panes, such as between two panes of glass in an insulating glass unit, offers a number of special problems. Firstly, the available space, in transverse direction, for mounting the blind unit is rather limited, and further, the blind structure must have a rather durable, operationally reliable and maintenance free construction, inasmuch as the blind unit including the system for hoisting and lowering the blind is not readily accessible for repair or replacement, but instead normally will require replacement of the entire glass unit if malfunctions should occur. Furthermore, the blind must be simple and durable in operation by unskilled inhabitants of the building in question.

The main object of the invention has thus been to provide a rather compact, mechanically simple and durable blind for mounting between the double glass panes in insulating glass units and the like.

A further object for the invention is to provide a constructional solution which makes possible hoisting as well as lowering of the blind, and also an angular positioning of the separate slats in connection with the venetian blind.

A further object for the invention is to provide a solution making it possible to operate the blind with one single operational means, in other words, a blind which can be manually operated with one single hand.

A further very important object of the invention is to provide a suspension system including a cord suspension or drive, which can be given a rather compact construction, such that the solution is especially adapted for mounting between the glass panes in an insulating glass unit.

A still further object for the invention is to provide a solution which makes it possible to arrange a forced or mechanically controlled two-way hoisting and lowering of the blind. Such a solution may be desirable for several reasons, namely firstly because such a blind solution is very well adapted for mounting between two pane glasses which are having a position tilted from the vertical position, for instance in connection with glass roofing or the like, solutions which today are increasingly in use. Such solutions offer furthermore an added operational reliability in addition to that the occurrence of sound creations due to contact between the blind and the inside surface of the glass panes may be avoided.

The sealed insulating glass unit according to the invention is peculiar in that the support shaft is arranged rotatable as well as axially displaceable in order to accomplish winding and unwinding of the cord drive systems mainly in a single layer along parts of the support shaft, wherein the housing at each end at the corner of the window is furnished with separate corner pieces for closing the end of the housing which corner pieces serve as transition members between said housing and spacer elements in the glass unit on each side, and where one of said corner pieces also serves as an air tight or sealed passing through of the support shaft or a drive shaft connected to the support shaft.

When the winding and unwinding of the cord takes place mainly in a single layer the requirement for space is reduced. By having an air tight or sealed passing through of the support shaft or a drive shaft, it is possible to ensure that the hermetically sealed enclosure inside the unit is kept free from dust and humid air. The shaft passing through the corner piece may be maneuvered manually with simple means, e.g. be connected to a motor drive or an manual mechanism positioned on the outside of the window, or on the adjacent frame or wall.

A simple way of connecting the housing with the spacer elements along the sides may be provided with angularly shaped corner pieces as indicated in claim 2. The corner pieces also serves as support means for the adjacent spacer element in the insulating unit on either side.

A further important embodiment of the invention is that one is utilizing an especially designed spacer element, where the housing constitutes a spacer element and is composed of two parts, namely a substantially plate shaped support element for mounting of support bearings for the support shaft, and suitably configured U-shaped cover element, which is attached to the support element and forms an external part of the spacer element, the support element being provided with apertures for passage of the cord drive system, resulting in that the cord drive mechanisms are confined in a closed box profile element. The mentioned two-part box profile element for the cord drives constitutes thereby simultaneously the spacer element for the insulated glass unit.

The solution in accordance with the invention for suspending or mounting and manoeuvring of blinds, can be utilized in a number of various designs of venetian blinds and pleated blinds.
An embodiment of the invention which can be utilized on different types of blinds is indicated in claim 4. Another embodiment of the invention which is particularly useful in connection with pleated blinds, is indicated in claim 5.

A further embodiment of the invention, which is particularly useful in connection with venetian blinds, is indicated in claim 6. Hereby, the support shaft may, by rotation, be utilized for hoisting and lowering of the blind as well as for obtaining the desired angular positioning of the separate slats.

Some embodiments for window blinds in accordance with the invention shall in the following be described in detail, with reference to the accompanying drawings, wherein:

fig. 1 is showing a fragmentary or exploded perspective view illustrating the construction of a pleated window blind in accordance with the invention, and particularly illustrating the design of the main parts of the cord drive mechanism.

Fig. 2 and 3 are showing a front view and an end view of a pleated blind, respectively, which has substantially the same construction as the blind shown in fig. 1, but which has an alternative solution for the cord drive system, whereby is obtained a mechanically forced movement of the pleated blind from a closed to an open position.

Fig. 4 is showing a fragmentary perspective view, similar to fig. 1, of a second embodiment of the invention, wherein is used a venetian blind, and wherein the cord drive mechanism is so devised that one can obtain hoisting and lowering of the blind as well as rotation or angular positioning of each separate slat by means of one single manual manoeuvring means.

fig. 5 is a detail view shown in an enlarged scale, which perspective and in detail illustrates the cord drive mechanism utilized with the blind shown in fig. 4.

fig. 6 is a schematic view which in a cross-sectional plane illustrates an alternative detail solution for the angular adjustment of the slats used in the blind shown in fig. 3.

fig. 7 is a perspective detail view, shown in an enlarged scale, of a special corner key on the profile element for mounting the cord drive mechanism.

The cord drive system in accordance with the invention shown in fig. 1, is based upon the use of a longitudinal extending combined support and rotational shaft 16, which for all practical purposes extends transversely all the way from one side of the insulating unit to the other side, and which together with the cord drive is built into a two-part box shaped profile element 2, consisting of a top part or cover 4 and a base part 6, and which suitably is such configured that the cover 4 can be snapped onto the base part 6 which in this connection is provided with a suitable longitudinal groove 8 on either side. The cord drive consisting of support cord sections 10 and 12 has one end fixed to the shaft 16, which shaft is supported in two or more saddle shaped bearings 18, 18, mounted on the base part 6 of the profile elements. The cords 10 and 12 extend through apertures 20 and further down through elongated slits 22, 22, in the base part 6 of the profile element.

At one end, the support shaft 16 is attached to an inwardly screw threaded drive element 24. Outside the end of the shaft 16, is arranged a corner element 26 wherein is supported a not rotatable, screw threaded stem 28, provided with an aperture through which is positioned a locking spline 30. The aperture has greater diameter than the spline, such that the stem 28 is somewhat loosely supported.

The shaft 16 is by means of the screw threaded drive element 24 standing in threaded engagement with the stem 28.

The parts which are positioned at the other end of the shaft, i.e. the right side in the figure, are shown separately in a fragmentary view positioned above the shaft, and are for the sake of clarity indicated with a dotted line designated with the letter "A".

At the other end of the shaft 16 is attached a bushing 31, having a square aperture 32. The bushing 31 is attached in such a way that it cannot rotate relative the shaft 16.

In the right side corner key 32, which is provided with a throughgoing aperture, is positioned a packing/sealing unit consisting of two bearing rings 34, and further two special gaskets 36, and finally distance piece 38. The support shaft 16 extends through the corner key 32, and at the outer end of the shaft, which is available on the outside of the insulated glass unit, is arranged a groove with a rotation means adapted for connection to a manual or electric operation mechanism which thereby extends into the inside of the window, thereby enabling operation of the blind. These implements, which may be of in per se known construction, are assumed to be unnecessary to show and describe.

The support shaft 16, and a square shaft 40, are coupled together with a locking spline 42. The square shaft 40 extends into a bushing 31, having a square aperture.

When the shaft 43 is imparted a rotational movement, the movement is transferred to the support shaft 16. By means of the screw drive 24 and the stem 28, the support shaft 16 is simultaneously imparted an axial movement. Inasmuch as the cords 10 and 12 are fixed to the shaft 16, and further, in that the cords are guided through the openings 20, 22 in the bearings 18, 18, the combined rotational/axial movement of the shaft 16 is effecting that the cords are being wound on or unwound in parallel fashion in one single layer on the support shaft, simultaneously as the cords will maintain their vertical position relative to the apertures 20, 22.

The upper end of the pleated fabric 50 is attached
to the underside of the base plate 6 in the box shaped profile element, and the bottom or lowermost part of the pleated fabric is attached to a bottom rail 52. The drive cords 10 and 12 extend from the shaft 16 down through the apertures 20, 22, and then further down through apertures made in each of the slats in the accordion-like pleated fabric, and from there down to the bottom rail 52, whereat the cords are passing over not shown slide members 59 and from these out to the opposing side edges of the bottom rail 52 out to terminating members 24 likewise provided with slide members or the like (the slide members 54 are in the figure shown in not mounted position for the sake of clarity). The cords run from there as shown, back to the center portion of the pleated fabric, at which point the two cord ends are attached together via a spring 56 serving as a combined tension and shock absorber. By arranging the cord drives in this fashion, the blind will be self-adjusting inasmuch as each time the blind is being lifted up to the uppermost position in the shape of a folded package below the basis element 6, possible maladjustments in the pleated blind will be re-adjusted.

Figures 2 and 3 are showing a front view and an end view, respectively, of a modified embodiment for a pleated blind in accordance with the invention. The cord drive system, including the simultaneously rotating and longitudinally moving support shaft 16 together with the parts which are shown in the uppermost part of fig. 1, corresponds to the construction shown at the top of fig. 1, while the embodiment shown in fig. 3 relates to an alternative cord drive mechanism. The two corner keys 32 and 26, as also shown in fig. 1, are attached to spacer elements 60, 62, positioned on each side of the insulated glass unit, respectively, and which spacer elements at the bottom ends are attached to the lowermost position spacer element 64. The embodiment shown in fig. 2 and 3 constitutes a special embodiment or further development of the solution shown in fig. 1, since here are utilized double or two couples of cord drives, respectively designated 66, 66* and 68, 68*. Both ends of each cord drive or cords are however in this embodiment attached to the shaft 16 on the opposite side of the bearings 18 and 20. Through this arrangement, the cord drives 66, 66* and 68, 68* will thereby always be wound and unwound on the support shaft simultaneously in opposite direction. The cord drives extend from the support shaft 16 down through apertures 70, 70* on either side of the bearings 18, 18. The cord drives or runs 66, 68 continue from here down through apertures in the blind, through holes 72, 72* in the bottom rail 52, and from there down to slide members 74, 75 or the like, positioned in special turning or reversing members 76, 76 mounted on the spacer element 64. One of the two cord drives or runs, for instance cord drive 68, 68*, is attached to the bottom rail 52. During rotation of the shaft, the two cord drives or cord runs in each cord drive will thereby be wound and unwound simultaneously in opposite directions, simultaneously as the blind via the attachment point 71, 71 moves up or down. One has, in other words, provided a positive or mechanically guided winding and unwinding of the blind. During the assembly of the various parts, one sees to it that the cord drives are adjusted with a suitable tension, so that the blind is not given a change to contact the inside of the glass panes, even if the same are mounted in a tilted position. This embodiment is particularly suitable for insulated glass units which shall be mounted at an angle relative to the vertical plane.

Fig. 4 is showing a fragmentary perspective view, similar to fig. 1, of a further embodiment of the invention, where, in replacement of a pleated blind is utilized a venetian blind consisting of individual slats or foils 77, suspended with suitable mutual vertical distance, by means of couplewise cords or cord system 80, 80*, 82, 82*, interconnected at each separate slat by means of transverse connecting cords or ladder strings. All parts of these cord drive systems, except for the cord drives and the blind, correspond to the construction shown in fig. 1, and requires no repeated description, since in fig. 4 are utilized the same reference numbers on the parts, as appearing in fig. 1. At each lateral side of the blind is on the support shaft 16 further provided cord drives 78, 78*, the one end of which is attached to the support shaft at the points 79, 79*, extending down through apertures provided in each separate slat, and the other lower end of the cord is attached to the bottom rail 58. During rotation of the support shaft 16, the cord drive will be wound on, respectively unwound off the support shaft, simultaneously as the support shaft is laterally displaced effecting that the cord drives as shown will be wound, respectively unwound, in one single layer on the support shaft 16.

The special novelty of the blind solution in accordance with the invention shown in figures 4 to 6, relates to the suspension of the blind in order to adjust the angular position of the slats, and thereby the light opening in the insulating unit, in a simple and practical fashion. For rotating or pivoting of each of the slats, the same are in known fashion suspended in couplewise cord drives 80, 80*, wherein one cord extends along opposite side edges of the slats, and the cords are, as previously mentioned, suitably connected with lateral cords 84, forming support for each separate slat 77, 77, as shown in fig. 6, so that the desired pivoting of the slats can be effected by providing an uneven or different pulling in each respective cord.

In accordance with the invention, the cord couple or couples 80, 80* and 82, 82*, respectively, are arranged in a loop 86 extending around the support shaft, as best shown in fig. 5, which in a perspective view illustrates one of the suspension systems, for instance the left shown in fig. 4. The support shaft 16 is supported in a cradle-like bearing 88. The bearing cradle is provided with an circumferential slit 90, forming support for a slide ring 92, encompassing the support shaft and making possible a rotation of the support shaft and a displace-
ment of same longitudinally, while the slide ring may be remaining immovable, i.e. it would not rotate together with the support shaft.

A preferred embodiment of the loop is shown in fig. 6, showing a schematic cross-section, viewed against the bearing cradle 88. The shown loop 100 can consist of a suitable flexible material, for instance a textile material, plastics or possible metal, and it is as shown arranged in a loop 100, extending over the support shaft 16, or as shown along the said slide ring 92. The downwardly directed ends of the loop are guided through openings 102, 104 in the bearing cradle 88 and adjacent openings 104 in the support profile 6 and are on the underside terminated with stoppers 106, 108 simultaneously forming attachment points for the upper ends of the suspension cords 80, 80'.

The suspension system for the blind shown in figures 4 to 6, functions in the following way. When the support shaft is put into rotation, the cord drives 75, 76' are wound or unwound on the support shaft, depending upon the rotational direction of the shaft, as best shown in fig. 5, and the cord drives will be arranged in one single layer, because the support shaft simultaneously is being displaced laterally by means of the screw spindle 28 standing in engagement with the threaded drive member 24 mounted at the end of the support shaft as shown in fig. 4. Simultaneously, the loop 100 will follow the support shaft 16 in the one or in the other direction, depending upon the rotational direction of the support shaft, until one of the stoppers 106 hits and is biased against the underside of the profile element 6, simultaneously as the slats of the blind are pivoted to a closed position of the blind in the one or in the other direction. At the moment when one of the stoppers 106 hits the underside of the profile 6, the stopper 106 and/or the slide ring 92 will slide on the shaft 16. When it is desirable to position the slats in a more or less horizontal position, the support shaft is put into a very short rotational movement in the opposite direction, having the effect that the loop 100 will follow the support shaft through a slight movement in the opposite direction, such that the slats may then be put into a horizontal position or in any other desirable angular position. When using a slide ring, the loop may be attached to the slide ring. When it is desired to hoist up the blind completely, one initiates the required winding action of the support shaft, whereby the slats at the end of the hoisting movements will be stacked together to a package positioned below the base plate 6 of the profile element. In order to prevent that the support shaft continues to rotate subsequent to the blind having been completely hoisted up and stacked together, a friction coupling is suitably provided between the support shaft and the drive means, which may be a manual device or an electric device. The special novelty in this technical design is that a venetian blind can be operated, i.e. be lifted and lowered, as well as being angularly positioned, by one single manoeuvring means, namely the support shaft 16.

Fig. 7 is in an enlarged scale showing a perspective view of a preferred embodiment of a corner key 110 to be used in connection with the special two-part profile element, which is used for assembling the cord drive systems in accordance with the invention. The corner key 110 is provided in the shape of an angular profile element, having an upper arm 112, adapted for being pushed into the profile element when the same is assembled, and a lower arm 114 pushed into the spacer element on the other side of the window (not shown). The corner section 116 of the corner key is provided with a recess 118 adapted to receive a cover 120 for covering the outside end 122 of the transition shaft 43 (see fig. 1), which is provided with a suitable engagement means 124. adapted to be coupled to an electric motor or a manual drive mechanism. The cover is on the inside provided with a finger 126 adapted for engagement with the drive means 122, so that the support shaft 16 with the cover cannot rotate during storage and transport.

A blind in accordance with the invention can be operated either by means of an external drive means, which can be operated manually, or by means of an electric motor.

Claims

1. Sealed insulating glass unit with double glass panes for a window and comprising a window blind installed between the glass panes, the blind being provided with a cord drive system or the like, operable to position the blind in desired position in the unit, wherein the cord drive system is connected to a laterally arranged, longitudinal support shaft positioned in a housing (2), characterized in that the support shaft is arranged rotatable as well as axially displaceable in order to accomplish winding and unwinding of the cord drive systems mainly in a single layer along parts of the support shaft, wherein the housing at each end at the corner of the window is furnished with separate corner pieces (32; 110) for closing the end of the housing, which corner pieces serve as transition members between said housing (2) and the spacer elements in the glass unit on each side, and where one of said corner pieces also serves as an air tight or sealed passing through of a drive shaft connected to the support shaft or of the support shaft.

2. Unit according to claim 1, characterized in that the corner pieces are angularly shaped.

3. Unit according to claim 1 or 2, characterized in that the housing (2) constitutes a spacer element and is composed of two parts, namely a substantially plate shaped support element (6) for mounting of support bearings (18) for the support shaft (16), and suitably configured U-shaped cover element (4), which is
attached to the support element (6) and forms an 
external part of the spacer element, the support 
element (6) being provided with apertures (22) for 
passage of the cord drive systems.

4. Unit according to any of the claims 1 - 3, charac-
terized in that the cord drive consists of one single continuous cord (10,12), the respective ends of which are attached to the support shaft (16) spaced apart at laterally positioned attachment points, the cord (10) running from one first attachment point (17a) on the support shaft down through the window blind on one lateral side of same to a list or rail el-
lement (52) constituting the lower most part of the blind, laterally along said rail (52) by means of tran-
sition slide means or the like (54,54) arranged on both lateral sides of the rail, and from there with a cord run (12) up through the window blind to a sec-
ond attachment point (17b) for the other end of the cord on the support shaft.

5. Unit according to any of the claims 1 - 3, charac-
terized in that the blind is suspended by at least two independent cord drive systems (66, 68), that each consists of a single cord (66, 66°; 68, 68°), and that the ends of each cord (66; 68) have been fastened to opposite sides of the support shaft (16), respec-
tively, relative to its longitudinal axis, where the cords have parallel cord runs extending down through the blind and to the lower limit of the glass 
unit, for example to the lower spacer element (64), where the cords runs in a 180° loop on transition 
means (74; 75), one of said cord runs in each cord drive being attached at an attachment point located at the lower edge of the window blind, having the effect that the cord runs in each cord drive system during rotation of the support shaft will be simulta-
aneously and equally winded and rewinded, thereby preserving a constant effective free lengths of each cord drive and also the initial tension in the cords, simultaneously as the window blind will be hoisted up or lowered in correspondence with the rotation of the support shaft, and effecting that the move-
ments of the window blind will take place in an me-
chanically controlled fashion in both directions.

6. Unit according to any of the claims 1 - 5, wherein 
the blind is of the type consisting of individual slats which are suspended in two or more cord drive ar-
rangements, each of which consists of two in the 
longitudinal direction mutually separated and later-
ally in couples arranged cord means provided with support means for the slats and which, by carrying out an unequal hoisting or pulling movement, can accomplish a pivoting of each slat in order to adjust the light passage through the blind, characterized in that the in couples arranged, laterally mutually spaced apart cord drives for adjustment of the an-
gular position of the slats, at their upper ends are 
connected slideably to a limited extent to the support 
shaft (16).

Patentansprüche

1. Abgedichtete Isolationsglaseinheit mit Doppellglas-
scheiben für ein Fenster, aufweisend eine Fenster-
jalousie, die zwischen den Glasscheiben installiert 
ist, wobei die Jalousie mit einem Seitribsystem 
oder dergleichen versehen ist, das wirksam ist, um 
die Jalousie in der Einheit in die gewünschte Posi-
tion zu bringen, wobei das Seitribsystem mit einer 
seitlich angeordneten longitudinalen Tragwelle 
verbunden ist, welche in einem Gehäuse (2) angeord-
net ist, dadurch gekennzeichnet, daß die Tragwelle 
sowohl drehbar als auch axial verschiebbar ange-
ordnet ist, um das Auf- und Abwickeln der Seitribs-
ysteme hauptsächlich in einer einzelnen Schicht 
entlang von Teilen der Tragwelle zu ermöglichen, 
wobei das Gehäuse an jedem Ende an der Ecke 
das Fensters mit eigenen Eckstücken (32, 110) zum 
Schließen des Endes des Gehäuses ausgestattet ist, 
welche Eckstücke als Übergangsstücke zwi-
schen dem Gehäuse (2) und den Abstandselemen-
ten in der Glaseinheit auf jeder Seite dienen, und 
wobei eines der Eckstücke auch als luftdichter oder 
abgedichteter Durchgang durch eine Antriebswelle 
dient, welche mit der Tragwelle verbunden ist oder 
 ihr angehört.

2. Einheit nach Anspruch 1, dadurch gekennzeichnet, 
daß die Eckstücke winkelförmig geformt sind.

3. Einheit nach Anspruch 1 oder 2, dadurch gekenn-
zeichnet, daß das Gehäuse (2) ein Abstandsle-
ment bildet und aus zwei Teilen zusammengesetzt

ist, nämlich aus einem im wesentlichen oben ge-
formten Tragelement (6) für das Anbringen der 
Traglager (18) für die Tragwelle (16) und einem ge-
eignet konfigurierten U-förmigen Abdeckelement 
(4), das am Tragelement (6) befestigt ist und einen 
äußerer Teil des Abstandselementes bildet, wobei 
das Tragelement (6) mit Öffnungen (22) für den 
Durchgang der Seitribsysteme versehen ist.

4. Einheit nach einem der Ansprüche 1 bis 3, dadurch 
gekennzeichnet, daß der Seittrieb aus einem ein-
zelnen kontinuierlichen Seil (10, 12) besteht, des-
sen jeweilige Enden an der Tragwelle (16) vonein-
ander befestet an seitlich angeordneten Befes-
tigungspunkten befestigt sind, wobei das Seil (10) 
von einem ersten Befestigungspunkt (17a) auf der 
Tragwelle durch die Fensterjalousie auf einer seit-
lichen Seite derselben nach unten zu einem Lei-
sten- oder Schienenelement (52), das den unter-
sten Teil der Jalousie bildet, seitlich entlang der
Schiene (52) durch Übergangs-Gleitmittel oder der gleichen (54, 54), die an beiden seitlichen Seiten der Schiene angeordnet sind, und von dort mit einem Seillauf (12) durch die Jalousie nach oben zu einem zweiten Befestigungspunkt (17b) für das andere Ende des Seils auf der Tragwelle verläuft.

5. Einheit nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daß die Jalousie durch mindestens 2 unabhängige Seiltriebssysteme (66, 66) aufgehängt ist, daß jedes aus einem einzelnen Seil (66, 66: 66, 66) besteht und daß die Enden jedes Seils (66, 66) jeweils an gegenüberliegenden Seiten der Tragwelle (16) in bezug auf ihre Längsachse befestigt sind, wobei die Seile parallele Seilläufe aufweisen, die sich durch die Jalousie nach unten und an die untere Grenze der Glasleihe erstrecken, beispielsweise zum unteren Abstandselement (64), wo die Seile in einer 180°-Schleife auf Übergangsmitteln (74: 75) verlaufen, wobei einer der Seilläufe in jedem Seiltrieb an einem Befestigungspunkt befestigt ist, der sich an der unteren Kante der Fensterjalousie befindet, was den Effekt hat, daß die Seilläufe in jedem Seiltriebssystem während der Drehung der Tragwelle gleichzeitig und in gleichen Abständen auf- und abgebogen werden, wodurch gleichzeitig konstante effektive Längen jedes Seiltriebes und auch die anfängliche Spannung der Seile bewahrt werden, wenn die Fensterjalousie gemäß der Drehung der Tragwelle nach oben gezogen oder abgesenkt wird, und wodurch bewirkt wird, daß die Bewegungen der Fensterjalousie in beiden Richtungen auf mechanisch kontrollierte Weise stattfinden.

6. Einheit nach einem der Ansprüche 1 bis 5, wobei die Jalousie von der Art ist, die aus individuellen Streifen besteht, die in zwei oder mehreren Seiltriebanordnungen aufgehängt sind, von denen jede aus zwei in Längsrichtung voneinander getrennten und seitlich in Paaren angeordneten Seilmitteln besteht, die mit Traggelenk für die Streifen versehen sind und die durch Ausführen einer ungleichen Hub- oder Zugbewegung ein Schwenken jedes Streifens bewirken können, um den Lichtdurchgang durch die Jalousie einzustellen, dadurch gekennzeichnet, daß die in Gruppen angeordneten, seitlich voneinander befestigten Seiltreibe für die Einstellung der Winkelpositionen der Streifen an ihren oberen Enden in einem begrenzten Ausmaß verschiebbar mit der Tragwelle (16) verbunden sind.

Revendications

1. Unité à vitres isolantes étanche avec des plaques de vitre doubles pour une fenêtre et comprenant un store de fenêtre installé entre les plaques de vitre, le store étant pourvu d’un système d’entraînement à corde ou analogues, actionnable pour positionner le store dans la position recherchée dans l’unité, où le système d’entraînement à corde est connecté à un arbre de support longitudinal agencé latéralement, positionné dans un logement (2), caractérisée en ce que l’arbre de support est agencé pour pouvoir tourner et pour être déplaçable axialement afin d’accomplir l’enroulement et le déroulement des systèmes d’entraînement à corde, principalement en une seule couche le long des parties de l’arbre de support, où le logement à chaque extrémité du coin de la fenêtre est équipé de pièces de coin séparées (32 : 110) pour fermer l’extrémité du logement, ces pièces de coin servant d’éléments de transition entre ledit logement (2) et les éléments d’écartement dans l’unité à vitres de chaque côté, et où une desdites pièces de coin sert également à un passage étanche ou étanche à l’air d’un arbre d’entraînement connecté à l’arbre de support ou de l’arbre de support.

2. Unité selon la revendication 1, caractérisée en ce que les pièces de coin ont une forme angulaire.

3. Unité selon la revendication 1 ou 2, caractérisée en ce que le logement (2) constitue un élément d’écartement et est composé de deux parties, à savoir d’un élément de support (6) sensiblement en forme de plaque pour l’installation de paliers de support (18) pour l’arbre de support (16), et d’un élément de recouvrement (4) configuré de manière appropriée en U. qui est fixé à l’élément de support (6) et qui forme une partie externe de l’élément d’écartement, l’élément de support (6) présentant des ouvertures (22) pour le passage des systèmes d’entraînement à corde.

4. Unité selon l’une des revendications 1 - 3, caractérisée en ce que l’entraînement à corde est constitué d’une seule corde continue (10, 12) dont les extrémités respectives sont fixées à l’arbre de support (16) espacées à des points d’attachement positionnés latéralement, la corde (10) s’étendant du premier point d’attache (17a) sur l’arbre de support vers le bas à travers le store de fenêtre, sur un côté latéral de celui-ci, à un élément de bande ou de rail (52) constituant la partie la plus inférieure du store, latéralement le long dudit rail (52) par des moyens coulissants de transition ou analogues (54, 54) agencés sur les deux côtés latéraux du rail et, de là, avec une course de corde (12) vers le haut à travers le store de fenêtre à un deuxième point d’attache (17b), pour l’autre extrémité de la corde sur l’arbre de support.

5. Unité selon l’une des revendications 1 - 3, caractérisée en ce que le store est suspendu par au moins
deux systèmes d'entraînement à corde indépendants (66, 68), en ce que chacun est constitué d’une seule corde (66, 66'; 68, 68'), et en ce que les extrémités de chaque corde (66, 68) ont été fixées aux côtés opposés de l'arbre de support (16), respectivement, relativement à son axe longitudinal, où les cordes ont des courses de corde parallèles s'étendant vers le bas à travers le store et à la limite inférieure de l'unité à vitres, par exemple à l'élément d'écartement inférieur (64), où les cordes s'étendent suivant une boucle de 180° sur le moyen de transition (74, 75), l'une desdites courses de corde dans chaque entraînement à corde étant fixée à un point d'attache situé au bord inférieur du store de fenêtre, ayant pour effet que les courses de corde dans chaque système d'entraînement à corde, pendant la rotation de l'arbre de support, seront simultanément et également enroulées et déroulées, en préservant ainsi une longueur libre effective constante de chaque entraînement à corde et également la tension initiale dans les cordes, simultanément lorsque le store de fenêtre sera remonté ou abaissé en correspondance avec la rotation de l'arbre de support et provoquant que les mouvements du store de fenêtre auront lieu d’une manière mécaniquement contrôlée dans les deux directions.

6. Unité selon l'une des revendications 1 - 5, où le store est du type constitué de lattes individuelles qui sont suspendues selon deux agencements d'entraînement à corde où plus, dont chacun est constitué de deux moyens de corde séparés mutuellement dans la direction longitudinale et agencés latéralement par paires, avec un moyen de support pour les lattes et qui, en exécutant un mouvement de relèvement ou de traction inégal, peuvent accomplir un pivotement de chaque lattes pour ajuster le passage de la lumière à travers le store, caractérisée en ce que les entraînements à corde, agencés par paires, espacés mutuellement latéralement, pour l'ajustement de la position angulaire des lattes, sont reliés d’une manière coulissante à leurs extrémités supérieures à un degré limité à l’arbre de support (16).