



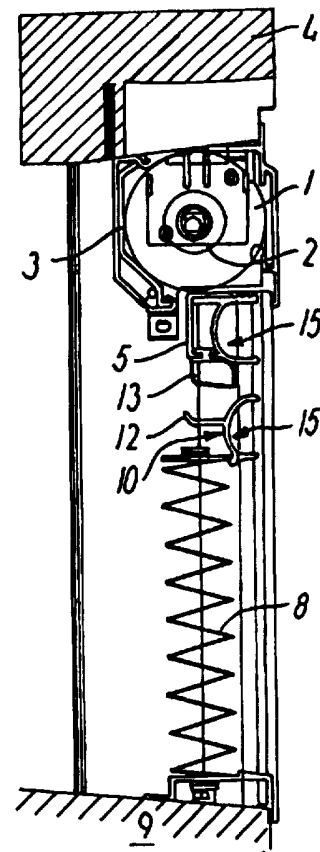
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : E06B 9/24	A1	(11) International Publication Number: WO 96/23949
		(43) International Publication Date: 8 August 1996 (08.08.96)
<p>(21) International Application Number: PCT/DK96/00037</p> <p>(22) International Filing Date: 23 January 1996 (23.01.96)</p> <p>(30) Priority Data: 9500044 U 3 February 1995 (03.02.95) DK</p> <p>(71) Applicant: V. KANN RASMUSSEN INDUSTRI A/S [DK/DK]; 10 Tobaksvejen, DK-2860 Søborg (DK).</p> <p>(72) Inventor: NIELSEN, Torben, Holst; 64 Rødager Allé, DK-2610 Rødovre (DK).</p> <p>(74) Agents: RAFFNSØE, Knud, Rosenstand et al.; International Patent-Bureau, 23 Høje Taastrup Boulevard, DK-2630 Taastrup (DK).</p>	<p>(81) Designated States: AT, AT (Utility model), DE, DE (Utility model), ES (Utility model), FI, FI (Utility model), European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published <i>With international search report.</i></p>	

(54) Title: DUAL SCREENING DEVICE FOR A WINDOW

(57) Abstract

A dual window screening device comprises a first screening element (1) with a breadth of flexible screening material, which in the end is rolled up on a roller tube (2) at one of a pair of sash members positioned opposite each other (4), whereas the opposite end is connected with an end rail profile (5). A second screening element (8) is in one end fastened to the opposite sash member (9) and in the opposite end connected with an end rail profile (10). The screening device may be designed for manual or electronic operation and comprises guiding and arresting means permitting mutually independent adjustment of the two screening elements (1, 8) in arbitrary positions. The guiding and arresting means comprise a common guide track (11) for the screening elements so that these are used in a common guiding plane.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgyzstan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LI	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LK	Sri Lanka	SK	Slovakia
CM	Cameroon	LR	Liberia	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EE	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France	MR	Mauritania	UZ	Uzbekistan
GA	Gabon			VN	Viet Nam

Dual screening device for a window

The invention relates to a screening device for a window with a substantially rectangular sash having two pairs of sash members positioned opposite each other and
5 of the type comprising a first screening element with a breadth of a flexible screening material which in one end is rolled up on a roller tube fastened to one sash member in the first pair of sash members, and a second screening
10 element which in one end is fastened to the second sash member in said first pair, where in connection with the other pair of sash members, guiding means are provided for guiding the movement of the two screening elements, whereas both screening elements in the opposite end are
connected with an end rail profile.

15 It is well known to provide windows with screening devices both for light dimming in the form of actual blackout as well as dimming of penetrating sun light in daylight hours, and for screening against insects.

In light-dimming screening devices to be positioned
20 close to the window sash, it is, however, with the known devices not possible at one time to take more light-dimming purposes into account, eg. to provide a window with both a siesta roller blind and a venetian blind or
a translucent pleated blind which may especially be
25 desirable for roof windows in an oblique roof surface where the light incidence is considerably larger than in vertical windows.

DE Publication no 2934122 discloses a screening
device of the above type in which a translucent and air
30 permeable curtain at its upper end is connected with a carrying tube for connection with the lower end of a roller shutter. The screening device is operated in the way that by means of engagement means the curtain is
coupled with the roller shutter and subsequently pulled
35 out of its normally rolled up position to a desired

placement in the elevation of the window. This arrangement, however, implies that the curtain may only be used together with the roller shutter which partly results in demands being made to the design and function of the engagement means and partly rules out the possibilities of optional screening combinations as the area of the window opening which is not covered by the roller shutter is either covered completely - by a coupled curtain - or not at all. Since the roller shutter and the curtain are guided in planes which are displaced in a mutually parallel manner, this known device is furthermore relatively bulky and requires side guides with separate tracks for the roller shutter and the curtain, respectively.

According to the invention these drawbacks are eliminated in a simple way in that the guiding means at each sash member in said other pair comprise a side guide rail with a common track for the two screening elements, that arresting means are provided for mutually independent retention of the screening elements in a number of arbitrary positions, and that the mutually facing sides of the two end rail profiles are designed so that they may enter into a mutually form-adapted abutment.

By this design it is obtained that the two screening elements move in a common guiding plane and may be parked individually and fully independently in arbitrary intermediate positions such that the parts belonging to the roof light-admitting area of the window and covered by the screening elements may be adjusted correspondingly.

The screening device may be designed for manual operation in the way that the end rail profiles of the two screening elements for individual manual operation are connected each with a catching device, and that said side guide rail and end rail profiles are designed with cooperating friction arresting means for said mutually independent retention of the screening elements against an impact of force directed against the sash member to which the screening element in question is fastened.

The screening device may according to a further development of the invention also be designed for electrical operation in the way that the two screening elements are electrically operated, said end rail profile
5 of each element being connected with a separate electric drive motor through a flexible connection device which provides said arresting means in which control circuits for the two drive motors are arranged for deactivating an activated drive motor when the end rail profiles enter
10 into mutual abutment.

The invention will be explained in more detail with reference to the schematical drawing in which

Fig. 1 in perspective shows an embodiment of a roof window with a dual screening device according to the
15 invention,

Figs. 2 and 3 show sectional views of the screening device in two different positions, and

Fig. 4 shows a sectional view of the guiding and arresting means to be used by manual operation of the
20 screening device.

In the shown embodiment the dual screening device for a roof window with a sash consisting of horizontal sash members 4 and 9 and vertical sash members 16 and 17 comprises a roller blind 1 which is rolled up on a
25 spring-biassed roller tube 2 mounted in a casing 3 which here as shown is fastened to the horizontal top section 4 of the window sash, whereas an end rail profile in the form of a bottom rail 5 is fastened at the free end of the roller blind.

In order to secure the roller blind 1 in unrolled positions against the spring bias whose function is to keep the curtain cloth in a permanently tight stretch, guiding and arresting means are provided at the side sections of the sash, in the shown example in the form of
35 side guiding rails 6 and 7 with a track 11, by which a friction end pin 12 may as shown in Fig. 4 by appropriate friction secure the roller blind in arbitrary unrolled positions.

The second screening element is in the shown embodiment constituted by a sunlight dimming, but translucent pleated blind 8, whose lower end is as shown fastened to the horizontal bottom section 9 of the window sash, whereas the free upper end is connected with an end guiding rail 10 guided by means of friction end pins 12 in connection with the rail 10 in the same track 11 in the guiding rails 6 and 7 as the roller blind 1, so that the pleated blind 8 may also be secured against the gravitational force in arbitrary unrolled positions, independently of the roller blind 1 being retained.

As shown in Figs. 2 and 3, the end rail profiles 5 and 10 are on their mutually facing sides designed to enter into a mutually form-adapted abutment, a bottom sealing 13 on the rail 5 being designed with an arc-shaped underside matching the top side of a rearwards projecting flange part 14 on the rail 10.

The dual screening device may also be designed in an inverse manner with a pleated blind above and a roller blind below. Furthermore, the two screening elements may be fastened to the vertical sash members in the sash of the window so that they move sideways.

In the shown embodiment, the screening device is designed for manual operation, both end rail profiles 5 and 10 being designed with a catching device, eg. as shown in Figs. 2 and 3 in the form of a continuous catching track 15.

However, the dual screening device may, as mentioned, alternatively be designed for manual operation. Thus, for each of the screening elements 1 and 8 the accompanying profile 5 and 10, respectively, may through a cord drive of a design known per se eg. as known from the EP patent 015,043 be connected with a separate electric drive motor which, both for the roller blind 1 and for the pleated blind 8, may be positioned either in the casing 3 with the roller tube in or at the sash bottom section 9. As to operation and wiring, it is an

advantage if the two drive motors are positioned in or at the same sash member.

To avoid malfunction, the control circuits for the two drive motors may in a known manner be connected with
5 spring-biassed cord tension sensors which detect the cord tension in the two cord drives and switch off an activated drive motor when the cord slackens as a result of the profiles 5 and 10 entering into a mutual abutment.

C L A I M S

1. A screening device for a window with a substantially rectangular sash having two pairs of sash members positioned opposite each other (4,9;16,17) and of the
5 type comprising a first screening element (1) with a breadth of a flexible screening material which in one end is rolled up on a roller tube (2) fastened to one sash member (4) in the first pair of sash members, and a
10 second screening element (8) which in one end is fastened to the second sash member (9) in said first pair, where in connection with the other pair of sash members, guiding means are provided for guiding the movement of the two screening elements, whereas both screening elements in the opposite end are connected with an end
15 rail profile (5,10), **characterized** in that the guiding means at each sash member in said other pair comprise a side guide rail (6,7) with a common track (11) for the two screening elements, that arresting means are provided for mutually independent retention of the screening
20 elements (1,8) in a number of arbitrary positions, and that the mutually facing sides (13,14) of the two end rail profiles (5,10) are designed so that they may enter into a mutually form-adapted abutment.

2. A window screening device according to claim 1,
25 **characterized** in that the first screening element has the form of siesta roller blind (1) rolled up with spring bias on said roller tube (2), whereas the further screening element (8) is a translucent element.

3. A window screening device according to claim 1 or 2,
30 **characterized** in that the end rail profiles (5-10) of the two screening elements for individual manual operation are connected each with a catching device (15), and that said side guide rail (6,7) and end rail profiles (5,10) are designed with cooperating friction arresting means
35 (11,12) for said mutually independent retention of the screening elements (1,8) against a load directed towards the sash member to which the screening element in question is fastened.

4. A window screening device according to claim 1 or 2, **characterized** that the two screening elements (1,8) are electrically operated, said end rail profile (5,10) of each element being connected with a separate electric drive motor through a flexible connection device which provides said arresting means in which control circuits of the two drive motors are arranged for deactivating an activated drive motor when the end rail profiles (5,10) enter into mutual abutment.
- 10 5. A window screening device according to claim 4, **characterized** in that said flexible connection device is constituted by a cord drive, and that said control circuit for each electric drive motor is meant to be affected by a cord tension sensor.

1/2

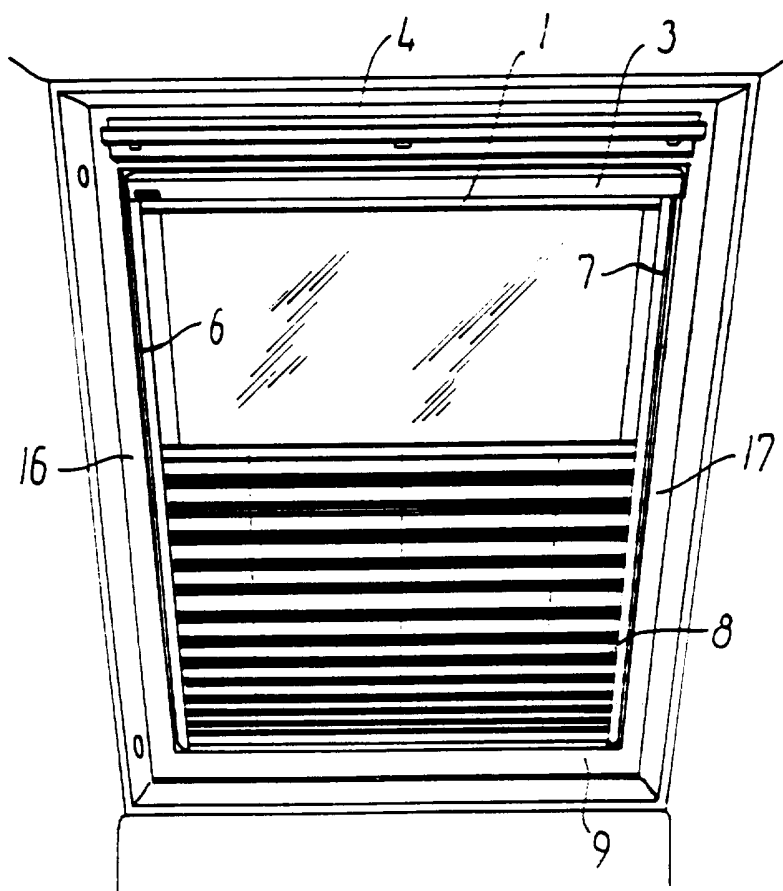


FIG. 1

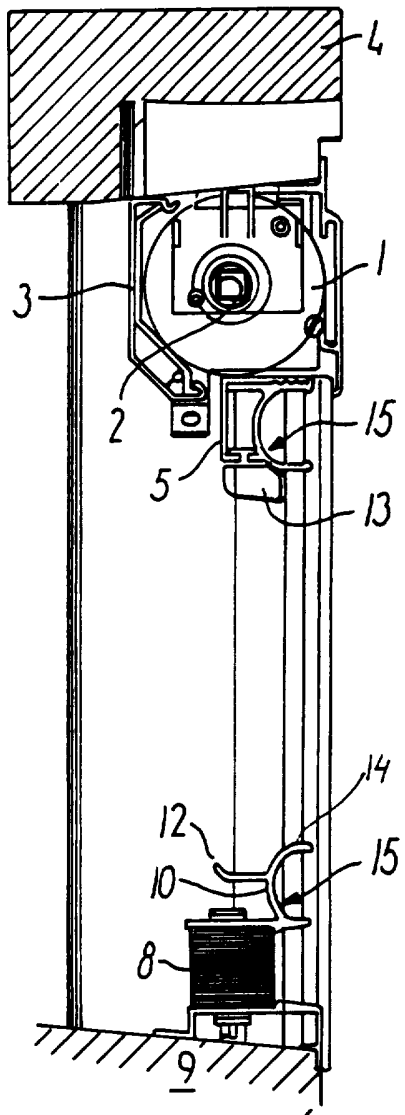


FIG. 2

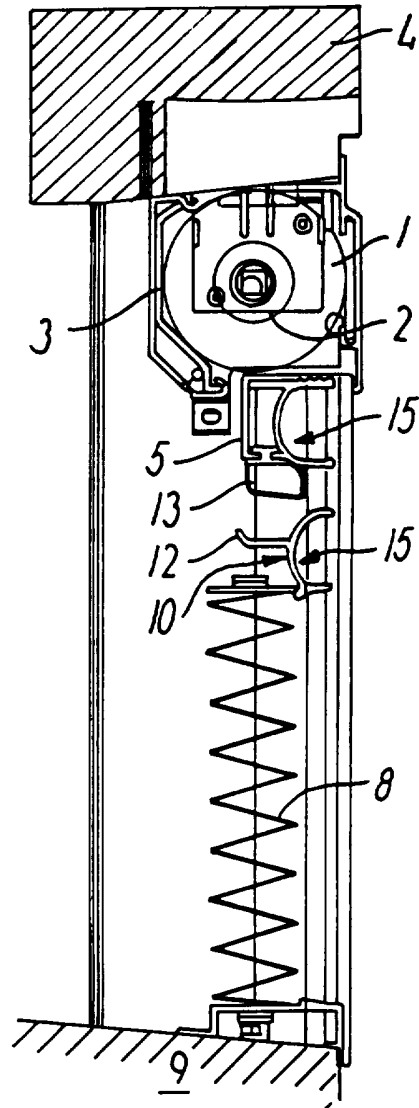


FIG. 3

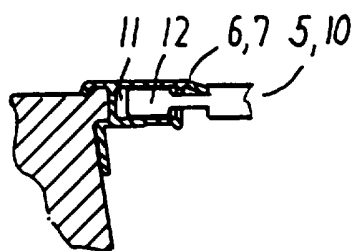


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 96/00037

A. CLASSIFICATION OF SUBJECT MATTER		
IPC6: E06B 9/24 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC6: E06B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
SE,DK,FI,NO classes as above		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 2934122 A1 (KARL RAU KG), 12 March 1981 (12.03.81) --	1-5
A	DE 4304923 A1 (WAREMA RENKHOFF GMBH), 11 August 1994 (11.08.94) -- -----	1-5
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
3 May 1996		06 -05- 1996
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86		Authorized officer Ake Olofsson Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT
Information on patent family members

01/04/96

International application No.
PCT/DK 96/00037

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A1- 2934122	12/03/81	NONE	
DE-A1- 4304923	11/08/94	NONE	