Clarke, Modet & Cº

COLOMBIA

P-2199

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES
E. S. D.

Ref.: Expediente No. 09.078.898
Solicitud de Patente a nombre de
HANS HUNG

Yo, DILIA MARÍA RODRÍGUEZ D´ALEMAN, identificada como aparece al pie de mi firma, domiciliada en la Carrera 11 No. 86-53, piso 6, obrando como apoderada de **Hans Hung**, domiciliada en Changhua Country, Taiwan, República de China, solicitante de la patente de la referencia, atentamente me permito presentar copias certificadas de la solicitud de Patente números 12/232,634 presentada en Estados Unidos de América el día 22 de septiembre de 2008 y Patente número 097213430 presentada en la República de China el día 29 de julio de 2008, con la debida traducción de lo pertinente.

Las copias certificadas están siendo presentadas hoy 30 de noviembre de 2009, siguiente día hábil, por cuanto el 29 de noviembre es festivo.

Señor Superintendente,

DILIA MARÍA RODRÍGUEZ D´ALEMAN
C.C. 41.654.882 de Bogotá.
T.P. 20824 CSJ

ESTADOS UNIDOS DE AMERICA
A TODOS AQUELLOS A QUIENES EL PRESENTE LLEGUE:

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS
Oficina de Patentes y Marcas de los Estados Unidos

22 de octubre de 2009

La presente es para certificar que el anexo es una copia fiel de los registros de la Oficina de Patentes y Marcas de los Estados Unidos, de los documentos de la solicitud de patente identificada más adelante, que cumplieron con los requerimientos para concederse una fecha de presentación de acuerdo con 35 USC 111.

Número de Solicitud: 12/232,634
Fecha de Presentación: 22 de septiembre de 2008

EL CÓDIGO DEL PAÍS Y EL NÚMERO DE SU SOLICITUD DE PRIORIDAD, PARA SER USADA EN LA PRESENTACIÓN EXTRANJERA BAJO EL CONVENIO DE PARÍS ES US 12/236,135.

Por la autoridad de
Bajo el Secretario de Comercio para la Propiedad Intelectual y el Director de la Oficina de Patentes y Marcas de los Estados Unidos de América

(fdo) **T. WALLACE**
Oficial Certificador
Sello oficial de la Oficina de Patentes y Marcas de los
Estados Unidos de América

PA 1773968

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

October 22, 2009

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: *12/232,634*
FILING DATE: *September 22, 2008*

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US12/232,634*

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office

T. WALLACE
Certifying Officer

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	EFP-2029 (11869)
First Inventor	Hans Hung
Title	SLIDER ASSEMBLY FOR SLAT
Express Mail Label No.	

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. [x] **Fee Transmittal Form** (e.g., PTO/SB/17) *(Submit an original and a duplicate for fee processing)*
2. [x] **Applicant claims small entity status.** See 37 CFR 1.27.
3. [x] **Specification** [*Total Pages* 8] Both the claims and abstract must start on a new page *(For information on the preferred arrangement, see MPEP 608.01(a))*
4. [x] **Drawing(s)** (*35 U.S.C. 113*) [*Total Sheets* 9]
5. **Oath or Declaration** [*Total Sheets* _____]
   a. [x] Newly executed (original or copy)
   b. [ ] A copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional with Box 18 completed)*
      i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. [x] **Application Data Sheet.** See 37 CFR 1.76
7. [ ] **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)* [ ] Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission** *(if applicable, items a. – c. are required)*
   a. [ ] Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. [ ] CD-ROM or CD-R (2 copies); or
      ii. [ ] Paper
   c. [ ] Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**

ACCOMPANYING APPLICATION PARTS

9. [ ] **Assignment Papers** (cover sheet & document(s)) Name of Assignee _____
10. [ ] **37 CFR 3.73(b) Statement** *(when there is an assignee)* [ ] **Power of Attorney**
11. [ ] **English Translation Document** *(if applicable)*
12. [ ] **Information Disclosure Statement** (PTO/SB/08 or PTO-1449) [ ] Copies of citations attached
13. [ ] **Preliminary Amendment**
14. [ ] **Return Receipt Postcard** (MPEP 503) *(Should be specifically itemized)*
15. [ ] **Certified Copy of Priority Document(s)** *(if foreign priority is claimed)*
16. [ ] **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. [ ] Other: _____

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No.:

Prior application information: *Examiner* _____ *Art Unit:* _____

19. CORRESPONDENCE ADDRESS

[ ] The address associated with Customer Number: _____ **OR** [x] Correspondence address below

Name	Chiayuan Chang				
Address	1219 Beach Park Blvd. Foster City, CA 94404, USA				
City	Foster City	State	CA	Zip Code	94404
Country	USA	Telephone		Email	

Signature		Date	
Name (Print/Type)		Registration No. (Attorney/Agent)	

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/17 (10-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995 no persons are required to respond to a collection of information unless it displays a valid OMB control number

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL For FY 2008

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 515.00

Complete If Known	
Application Number	
Filing Date	
First Named Inventor	Hans Hung
Examiner Name	
Art Unit	
Attorney Docket No.	EFP-2029

METHOD OF PAYMENT (check all that apply)

☑ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☐ Deposit Account Deposit Account Number: _____ Deposit Account Name: _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee

☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☐ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
Utility	310	155	510	255	210	105	515.00
Design	210	105	100	50	130	65	
Plant	210	105	310	155	160	80	
Reissue	310	155	510	255	620	310	
Provisional	210	105	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	210	105
Multiple dependent claims	370	185

Total Claims ____ - 20 or HP = 0 x 0 = Fee Paid ($) 0

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims ____ - 3 or HP = 0 x 0 = Fee Paid ($) 0

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims: Fee ($) _____ Fee Paid ($) _____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $260 ($130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets ____ - 100 = Extra Sheets ____ / 50 = Number of each additional 50 or fraction thereof ____ (round up to a whole number) x Fee ($) ____ = Fee Paid ($) ____

4. OTHER FEE(S)

Non-English Specification, $130 fee (no small entity discount) Fees Paid ($) _____

Other (e.g., late filing surcharge): _____ _____

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	Telephone
Name (Print/Type)			Date

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

SLIDER ASSEMBLY FOR SLAT

BACKGROUND OF THE INVENTION

The present invention relates to a slider assembly for a slat and, more particularly, to a slider assembly that can move smoothly by utilizing a rotatable axle device.

Blinds can provide shield from sunlight, privacy, and decoration for buildings. A plurality of slats are required for a window having a larger area. To allow positioning of the slats in "open" or "closed" positions or a position therebetween, an engaging member (such as in the form of a hook) is provided on a top of each slat and engaged with another engaging member (such as in the form of a through-hole) of a slider assembly that is slideably received in a header having one ore more tracks in which two adjacent tracks are spaced by a rib having a lower end from which two track pieces respectively extending into the two adjacent tracks. The slider assembly slideably received in the track includes a plurality of rollers in rolling contact with two adjacent track pieces located in the track, thereby achieving operation of opening/closing and positional adjustment. However, the slider assembly is moved in a limited space, such that a periphery of the slider assembly is liable to be in contact with and hindered by two sidewalls of the track and the track pieces, leading to hindrance to the movement of the slider assembly and operation of opening/closing and positional adjustment of the slat.

Thus, a need exists for a slider assembly that can move smoothly to allow smooth movement of the slat.

BRIEF SUMMARY OF THE INVENTION

The present invention solves this need and other problems in the field of blinds by providing, in a preferred form, a slider assembly including an axle device having a base with an engaging member adapted for coupling with another engaging member on a

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slat. The base includes an axle on a top thereof. The axle includes a top portion having a slit, forming two resilient tabs spaced by the slit. The axle further includes a bottom portion having an enlarged section. A slider includes a seat having a plurality of rollers rotatably mounted thereto. The seat includes an axle hole having a lower opening. The axle hole includes a retaining shoulder on an inner periphery thereof. The axle is inserted into the axle hole by resiliency provided by the slit. The enlarged section of the axle is engaged with the retaining shoulder, allowing the axle to rotate about an axis. The axle has a fixed position along the axis.

In the most preferred form, the base includes a top plate having two sides. The base further includes first and second legs respectively extending downward from the two sides. The engaging member is a through-hole defined in the second leg, and the other engaging member of the slat is a hook coupled with the through-hole.

The present invention will become clearer in light of the following detailed description of illustrative embodiments of this invention described in connection with the drawings.

DESCRIPTION OF THE DRAWINGS

The illustrative embodiments may best be described by reference to the accompanying drawings where:

FIG. 1 shows a partial, perspective view of a header having a single track and a plurality of slider assemblies according to the preferred teachings of the present invention.

FIG. 2 shows a perspective view of a slider and an axle device of a slider assembly of FIG. 1.

FIG. 2A shows a partial, cross sectional view of the slider and the axle device of FIG. 2.

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FIG. 3 is a partial, perspective view illustrating use of the slider assemblies according to the preferred teachings of the present invention with a header having a plurality of tracks and a slat.

FIG. 4 is a partial, perspective view illustrating use of the slider assemblies according to the preferred teachings of the present invention with a header having a plurality of tracks and a plurality of carriers.

FIG. 5 shows a partial, exploded, perspective view of the header, the carriers, and the slider assemblies of FIG. 4.

FIG. 6 is a side view of a carrier and two slider assemblies slideably mounted on the carrier.

FIG. 6A shows a partial, exploded, perspective view of the carrier and the slider assembly of FIG. 6.

FIG. 7 is a partial, perspective view illustrating use of the slider assemblies according to the preferred teachings of the present invention with a header having a plurality of tracks and a plurality of carriers each having a slat attached thereto.

FIG. 8 is a partial, perspective view illustrating use of the slider assemblies according to the preferred teachings of the present invention with a header having a plurality of tracks and a plurality of carriers each having a slat attached thereto by hook and loop fasteners.

FIG. 9 shows a top view of a header having a plurality of tracks, a plurality of carriers, and a plurality of slider assemblies according to the preferred teachings of the present invention.

All figures are drawn for ease of explanation of the basic teachings of the present invention only; the extensions of the figures with respect to number, position, relationship, and dimensions of the parts to form the preferred embodiments will be explained or will be within the skill of the art after the following teachings of the present

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invention have been read and understood. Further, the exact dimensions and dimensional proportions to conform to specific force, weight, strength, and similar requirements will likewise be within the skill of the art after the following teachings of the present invention have been read and understood.

DETAILED DESCRIPTION OF THE INVENTION

With reference to FIG. 3, a slider assembly A according to the preferred teachings of the present invention can be utilized with a header 6 for a blind 3. By coupling with a slat or shade 31 of blind 3 with slider assembly A, slat 31 can be moved along an extending direction of header 6 to achieve operation of opening/closing and positional adjustment.

With reference to FIGS. 3 and 9, slider assembly A according to the preferred teachings of the present invention can be utilized with a header 6 having a plurality of tracks 61. Each track 61 includes two sidewalls 63 each having a track piece 62 extending into track 61. FIG. 1 shows a header 6 having a single track. To provide a neat appearance, an end cap 7 can be mounted to an end of header 6 shown in FIG. 1 or FIG. 3.

With reference to FIGS. 1, 2, 3, and 5, slider assembly A according to the preferred teachings of the present invention includes an axle device 1 having a base 11. Base 11 includes an engaging member 12 (in the preferred form shown as a through-hole) for coupling with another engaging member 33 (in the preferred form shown as a hook) of slat 31 of blind 3. An axle 13 is provided on a top of base 11 and includes a slit 132 defined in a top portion 131 thereof, forming two resilient tabs 133 and 134 spaced by slit 132. Top portion 131 of axle 13 includes an enlarged section 135 at a bottom portion thereof. Base 11 includes a top plate 111 from which axle 13 extends upward. Top plate 111 includes first and second legs 112 and 113 extending downward from two sides thereof. Engaging member 12 (through-hole) is formed on second leg 113. Second leg

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113 is longer than first leg 112 to allow easy coupling. First leg 112 includes a hook 114 extending inward, and second leg 113 includes a hook 115 extending inward.

Slider assembly A according to the preferred teachings of the present invention further includes a slider 2 having a seat 21 to which a plurality of rollers 211 are rotatably mounted. Rollers 211 are mounted on and moveable along track pieces 62 of header 6 extending inward from sidewalls 63 of each track 61. Seat 21 includes an axle hole 212 having a lower opening. Axle hole 212 includes a retaining shoulder 213 on an inner periphery thereof. Axle 13 is forcibly inserted into axle hole 212 due to provision of resilient tabs 133 and 134 on top portion 131 of axle 13 until enlarged section 135 engages with retaining shoulder 213. After assembly, axle 13 can rotate freely about a vertical axis, and position of axle 13 along the vertical axis is fixed.

Slider assembly A according to the preferred teachings of the present invention can be utilized with carriers 4 shown in FIGS. 4 and 5. Specifically, two or more slider assemblies A according to the preferred teachings of the present invention is mounted on a carrier 4. Carrier 4 can include a plurality of hook fasteners 41 (FIG. 8), and slat 31 can include a plurality of loop fasteners 32 for coupling with hook fasteners 41. Carrier 4 has a width substantially the same as that of slat 31.

In use, the number of slats 31 is dependent upon the area to be covered by blind 3. Furthermore, a pressing block 8 (FIG. 5) can be provided to a side of slider assembly A according to the preferred teachings of the present invention. Pressing block 8 includes a screw hole 81. A screw 9 is extended through screw hole 81 to fix slider assembly A on carrier 4. Such an arrangement is suitable for a head 6 with a plurality of tracks 61. Particularly, pressing block 8 includes a pressing plate 82 extending therefrom. Pressing block 8 can push another carrier plate 4 in an adjacent track 61 to provide movement of carriers 4 as one. In a case that slider assembly A according to the preferred teachings of the present invention is utilized with such carriers 4, movement of carriers 4 extending

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across different tracks 61 can move smoothly without undesired shifting or hindrance due to free rotation of axle 13.

With reference to FIG. 5, carrier 4 includes a T-shaped section 40 at a top thereof. First and second legs 112 and 113 of base 11 of slider assembly A extend across two outer edges of T-shaped section 40. Furthermore, hook 114 of first leg 112 and hook 115 of second leg 113 couple with two sides of T-shaped section 40 to provide a reliable coupling. First leg 112 includes a downwardly facing groove 116 in a bottom thereof, and carrier 4 includes a corner piece 42 extending into and engaged in groove 116 to enhance the coupling effect.

Since second leg 113 is longer than first leg 112, a screw 5 having a hexagonal groove 51 in an end face thereof can be inserted through engaging member 12 in the form of a screw hole 12A (FIG. 6) and tightened by a hexagonal wrench to an outer edge of T-shaped section 40 of carrier 4, providing a tight coupling. This also allows adjustment of position of slider assembly A relative to carrier 4 by loosening and then tightening screw 5.

Thus since the invention disclosed herein may be embodied in other specific forms without departing from the spirit or general characteristics thereof, some of which forms have been indicated, the embodiments described herein are to be considered in all respects illustrative and not restrictive. The scope of the invention is to be indicated by the appended claims, rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are intended to be embraced therein.

REIVINDICACIONES

1. Un ensamblaje de control deslizante para una tablilla que comprende:

un dispositivo de eje que incluye una base con un miembro de conexión para realizar el acoplamiento con otro miembro de conexión de la tablilla, con la base que incluye un eje en la parte superior del mismo, con el eje incluyendo una porción superior con una abertura, formando dos pestañas resistentes por espaciadas por la ranura, con el eje incluyendo además una porción inferior que tiene una sección alargada, y

un control deslizante que incluye un asiento con una pluralidad de rodillos montados de forma rotativa, con el asiento que incluye un eje hueco con una apertura menor, con el eje hueco que incluye un hombro de retención en una periferia interior del mismo, con el eje que se inserta en el eje hueco por la resistencia proporcionada por la ranura, con sección alargada del eje conectado con el hombro de retención, permitiendo que el eje para rote en torno a un eje, y con el eje teniendo una posición fija a lo largo del eje.

2. El ensamblaje de control deslizante tal como se reivindica en la reivindicación 1, con la base que incluye una placa superior con dos partes, con la base incluyendo luego la primera y la segunda pierna que se extienden hacia abajo respectivamente desde los dos lados, y con el miembro de conexión formado sobre la segunda pierna.

3. El ensamblaje de control deslizante tal como se reivindica en la reivindicación 2, con el miembro de conexión del dispositivo de eje siendo un agujero definido en la segunda pierna, y con el otro miembro de conexión de la tablilla siendo un gancho acoplado con el agujero.

CLAIMS

1. A slider assembly for a slat comprising:

an axle device including a base having an engaging member adapted for coupling with another engaging member on the slat, with the base including an axle on a top thereof, with the axle including a top portion having a slit, forming two resilient tabs spaced by the slit, with the axle further including a bottom portion having an enlarged section; and

a slider including a seat having a plurality of rollers rotatably mounted thereto, with the seat including an axle hole having a lower opening, with the axle hole including a retaining shoulder on an inner periphery thereof, with the axle being inserted into the axle hole by resiliency provided by the slit, with the enlarged section of the axle engaged with the retaining shoulder, allowing the axle to rotate about an axis, and with the axle having a fixed position along the axis.

2. The slider assembly as claimed in claim 1, with the base including a top plate having two sides, with the base further including first and second legs respectively extending downward from the two sides, and with the engaging member being formed on the second leg.

3. The slider assembly as claimed in claim 2, with the engaging member of the axle device being a through-hole defined in the second leg, and with the other engaging member of the slat being a hook coupled with the through-hole.

ABSTRACT OF THE DISCLOSURE

A slider assembly includes an axle device having a base with an engaging member for coupling with another engaging member on a slat. The base includes an axle on a top thereof. The axle includes a top portion having a slit, forming two resilient tabs spaced by the slit. The axle further includes a bottom portion having an enlarged section. A slider includes a seat having a plurality of rollers rotatably mounted thereto. The seat includes an axle hole having a lower opening. The axle hole includes a retaining shoulder on an inner periphery thereof. The axle is inserted into the axle hole by resiliency provided by the slit. The enlarged section of the axle is engaged with the retaining shoulder, allowing the axle to rotate about an axis. The axle has a fixed position along the axis.

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VERIFIED STATEMENT (DECLARATION) BY AN INDEPENDENT INVENTOR CLAIMING SMALL ENTITY STATUS UNDER 37 CFR 1.9(F) AND 1.27 (b)

APPLICANT OR PATENTEE: Hans Hung

SERIAL OR PATENT NUMBER: DOCKET#:

FILED OR ISSUED: GROUP ART UNIT: EFP-2029(11867)

TITLE: SLIDER ASSEMBLY FOR SLAT EXAMINER:

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office with regard to the matter described in:

- ☒ The specification filed herewith, with the title as listed above.
- ☐ The patent application identified above.
- ☐ The PCT international patent application identified above.
- ☐ The patent number identified above.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license any rights in the invention to any person who could not be classified as an independent inventor under 37CFR 1.9(C) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR1.9 (d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed or licensed or am under an obligation under contract or law to assign, grant, convey or license any rights in the invention is listed below:

- ☒ no such person, concern or organization
- ☐ each such person, concern or organization listed below. Note: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities (37CFR 1.27).

FULL NAME XXXXXXXXXXXXXXXXXXXXXXXXXXX ADDRESS	☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

FULL NAME XXXXXXXXXXXXXXXXXXXXXXXXXXX ADDRESS	☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

☐ See attached sheet for additional person(s), concern(s),or organization(s).

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which the verified statement is directed.

	Inventor 1	Inventor 2	Inventor 3
Name	Hans Hung		
Date			
Signature	Hans Hung		

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ATTORNEY/DOCKET NO:

DECLARATION FOR PATENT APPLICATION

As a below name inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention (Design, if applicable) entitled:

the specification of which (check one) :

☒ is attached hereto.

☐ was filed on: as Application Serial No:

and (if applicable) was amended on:

☐ was file on: as International Application (PCT) No:

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal regulations, § 1.56. I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION (S)			PRIORITY CLAIMED	
Number	Country	Day / Month / Year Filed	Yes	No

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application (s) or PCT international application(s) designating The United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulation, § 1.56 which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:

Application Number	Filing Date	Status-Patented, Pending or Abandoned

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Send correspondence to : Chiayuan Chang(document receiver)
1217 Beach Park Blvd.
Foster City, CA 94404
USA

Full Name of First or Sole Inventor	Citizenship
Hans Hung (Hung is the last name)	Taiwan (Republic of China)
Residence Address No.32, Lane 670, Sec.1, Jhangshuei Road, Sihu Township, Changhua County, Taiwan, R.O.C.	Post Office Address ☐ Same as Residence Chiayuan Chang (document receiver) 1217 Beach Park Blvd. Foster City, CA 94404 USA
DATE	SIGNATURE Hans Hung

☐ See following pages for additional joint inventors.

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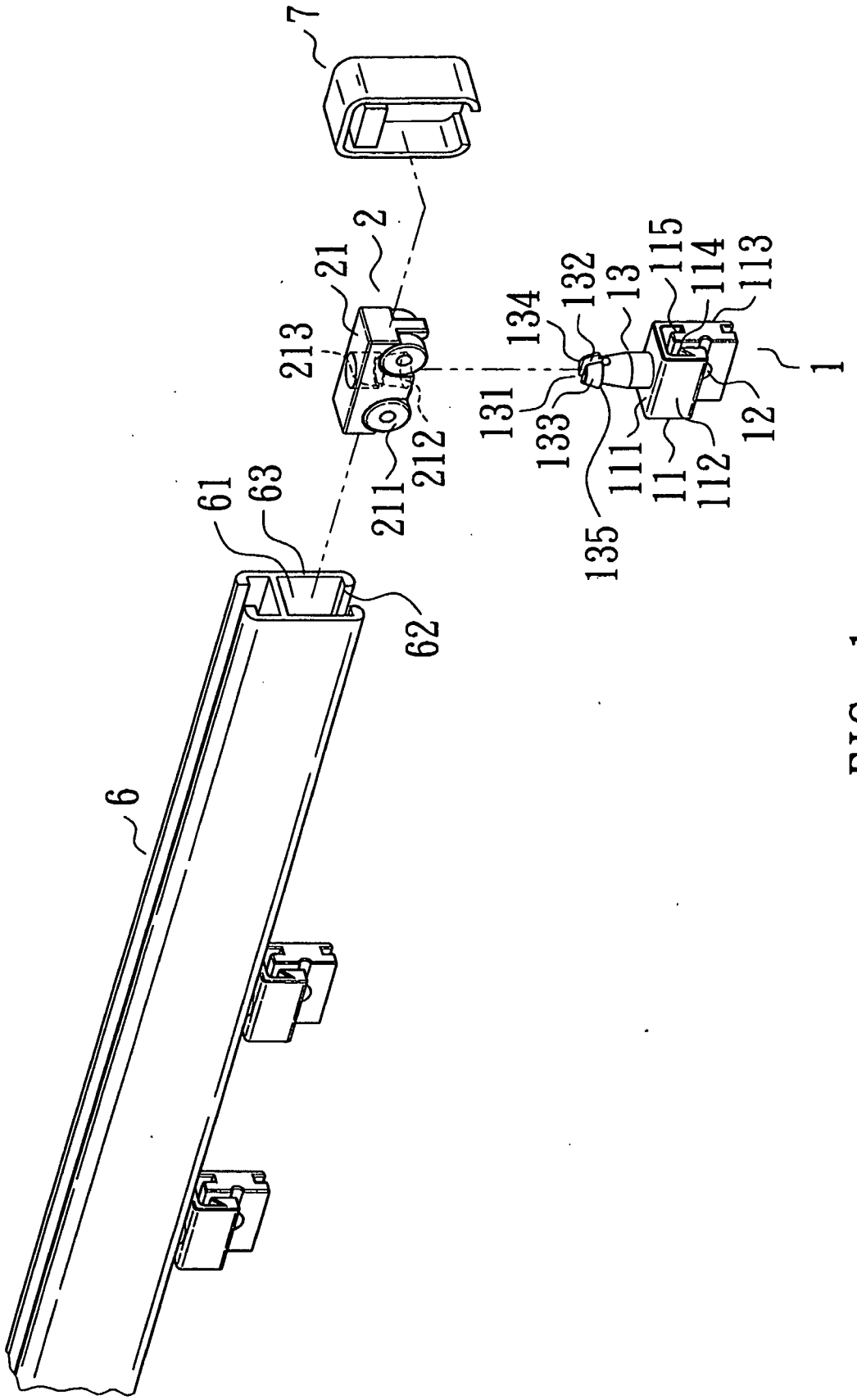

FIG. 1

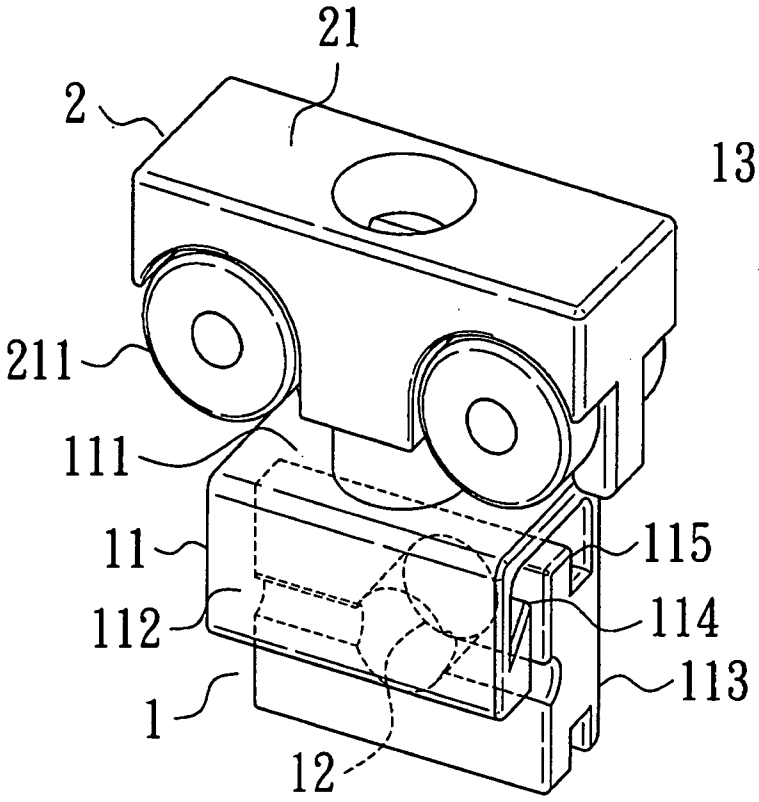

FIG. 2

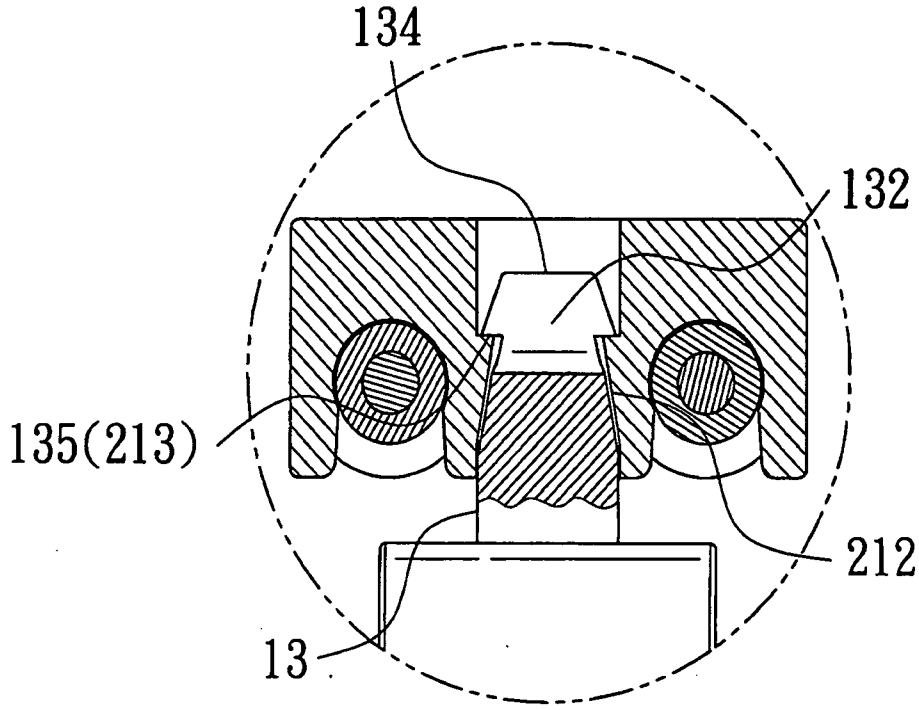

FIG. 2A

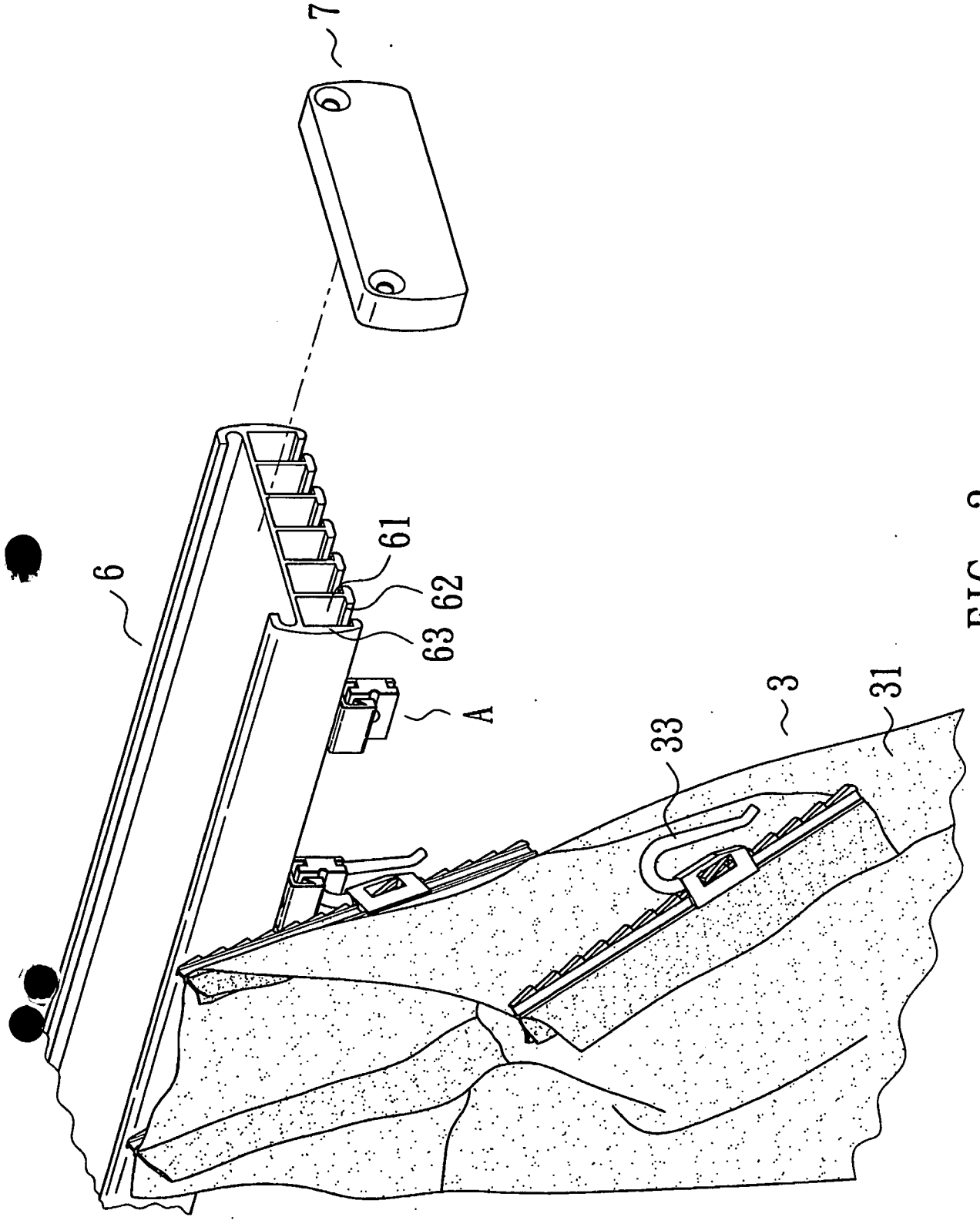

FIG. 3

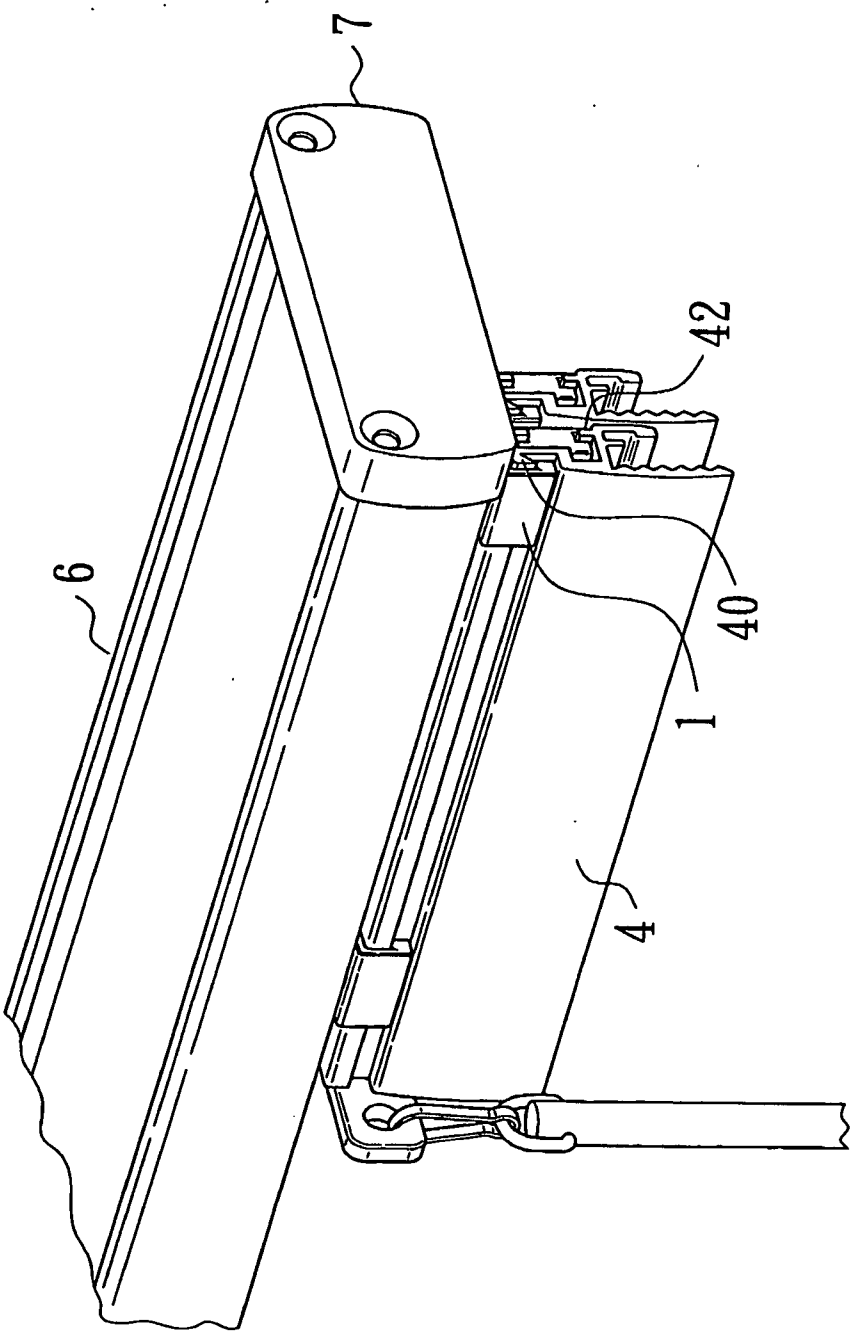

FIG. 4

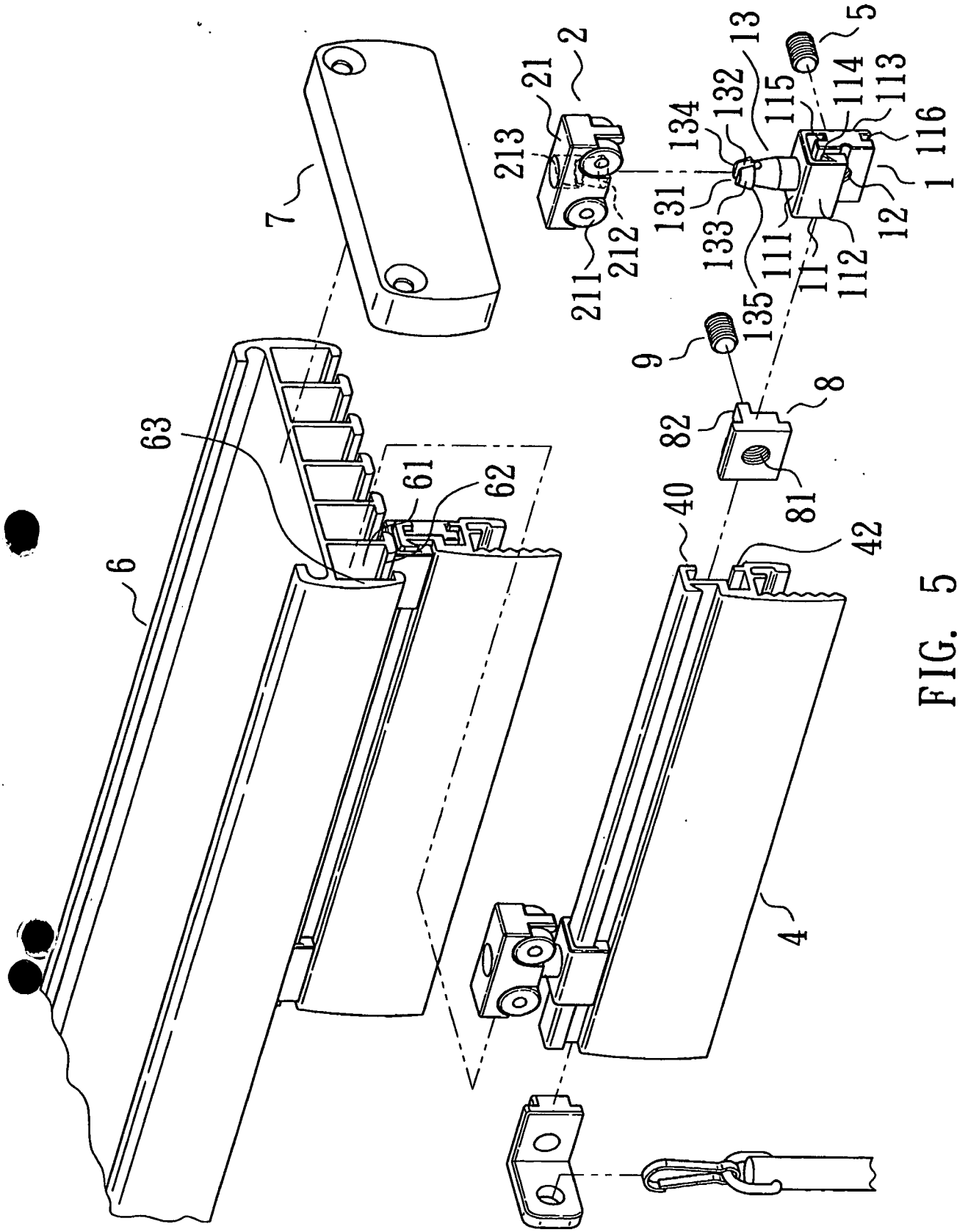

FIG. 5

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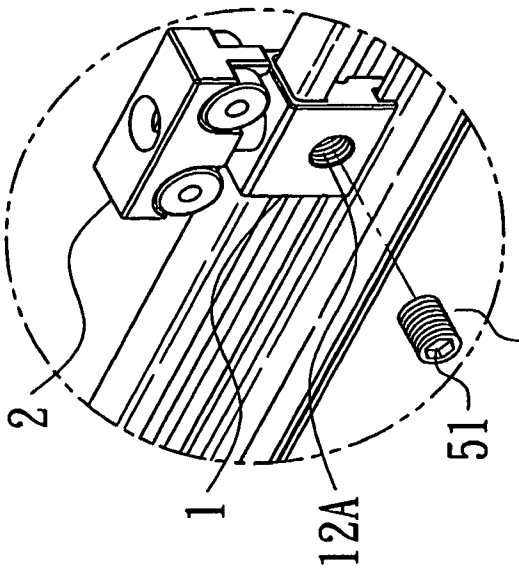

FIG. 6A

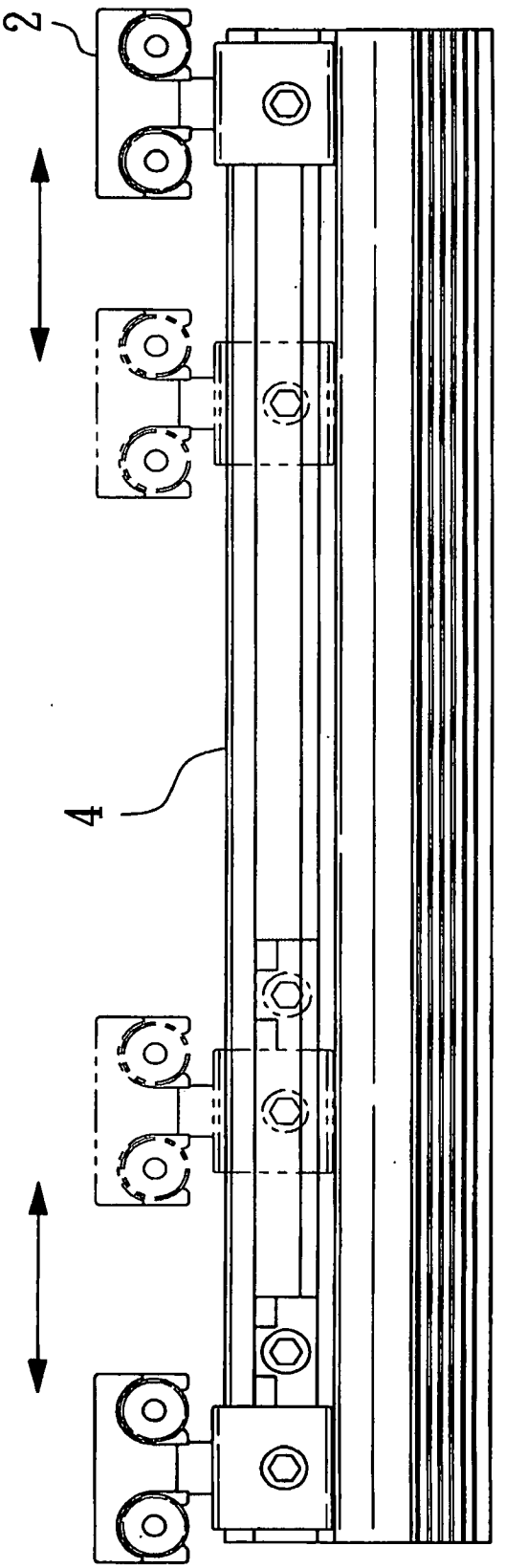

FIG. 6

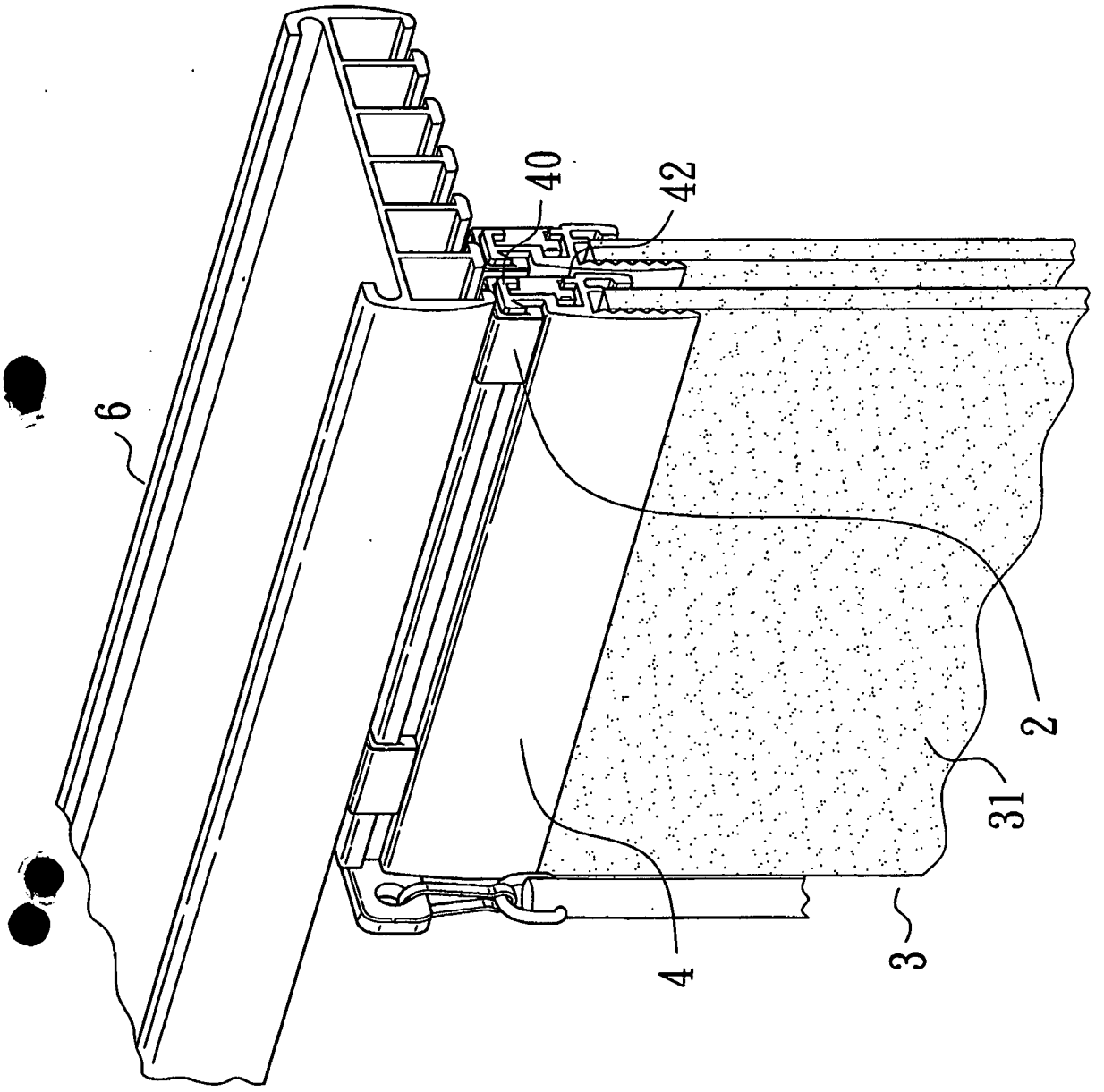

FIG. 7

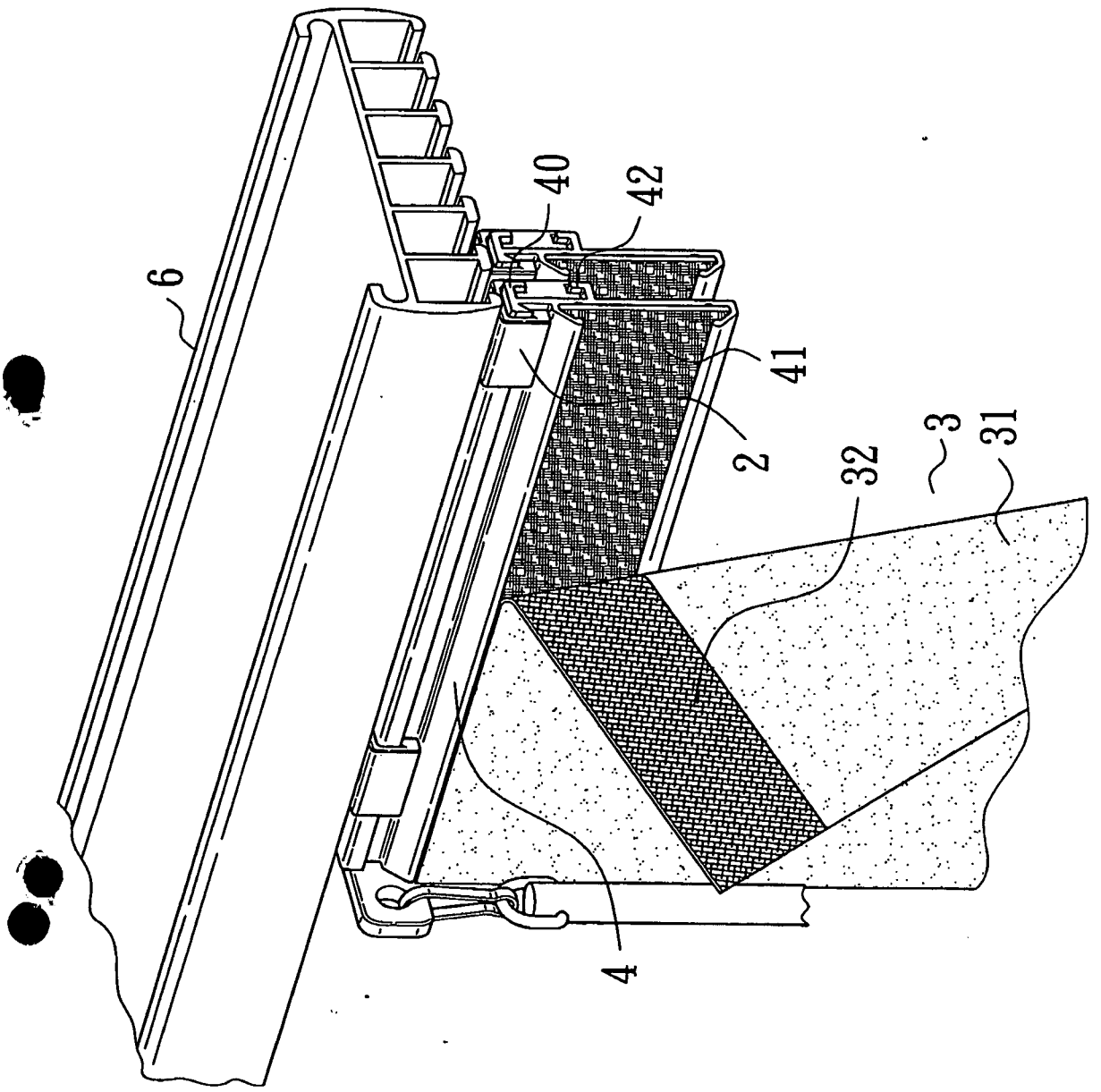

FIG. 8

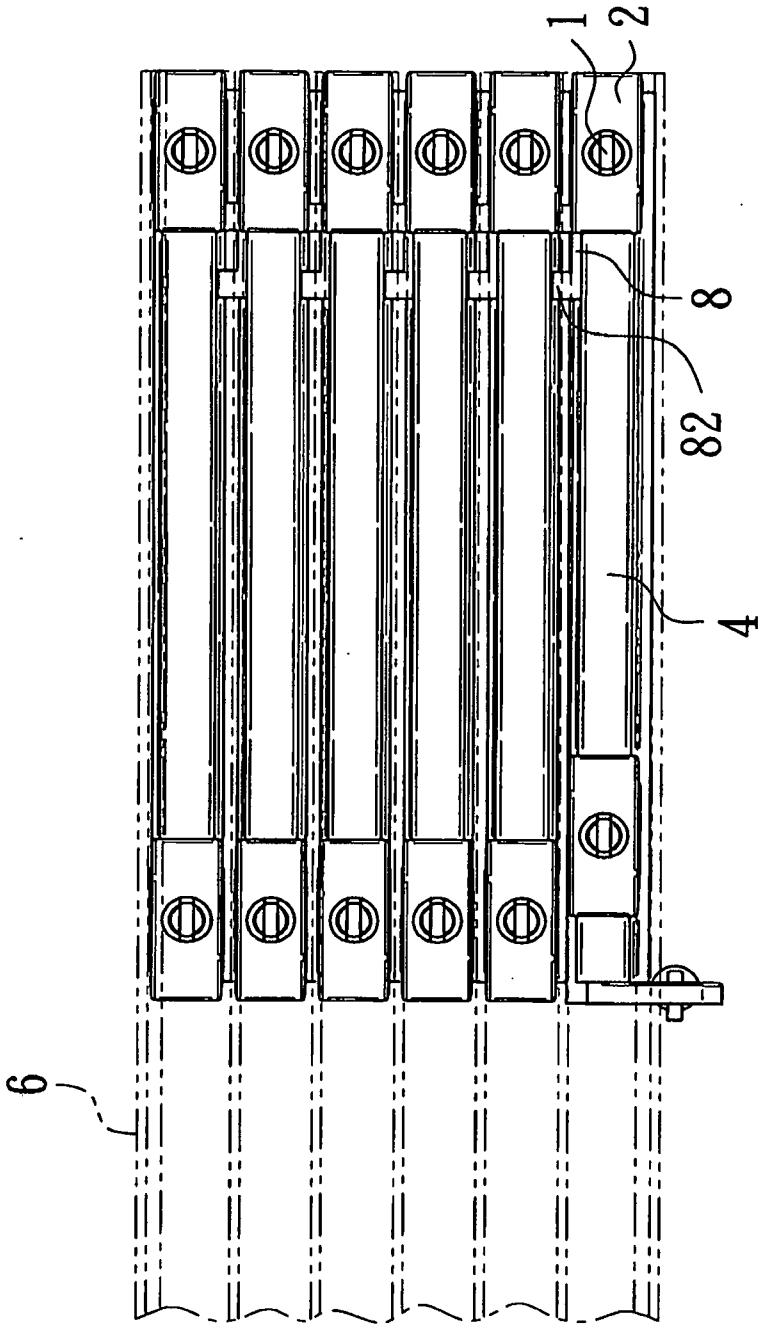

FIG. 9

Application Data Sheet

Application Information

Applicant Type::	Regular
Subject Matter::	Utility
Title::	SLIDER ASSEMBLY FOR SLAT
Attorney Docket Number::	EFP-2029(11867)
Request for Early Publication::	No
Request for Non-Publication::	No
Total Drawing Sheets::	9
Small Entity::	Yes
Petition included::	No
Secrecy Order in Parent Appl::	No

Applicant Information

Applicant Authority type::	Inventor
Primary Citizenship Country:	Taiwan
Status::	Full Capacity
Given Name::	Hans
Family Name::	Hung
Street of mailing address::	1217 Beach Park Blvd.
City of mailing address::	Foster City
State or Province of Mailing address::	CA,USA
Postal or Zip Code of Mailing address::	94404

Correspondence Information

Name::	Chiayuan Chang
Street of mailing address::	1217 Beach Park Blvd.
City of mailing address::	Foster City
State or Province of mailing Address::	CA
Country of mailing address::	USA
Postal or Zip Code of mailing Address::	94404
E-mail address::	evertop@ksts.seed.net.tw

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REIVINDICACIONES

1. Un ensamblaje de control deslizante para una tablilla que comprende:

un dispositivo de eje que incluye una base con un miembro de conexión para realizar el acoplamiento con otro miembro de conexión de la tablilla, con la base que incluye un eje en la parte superior del mismo, con el eje incluyendo una porción superior con una abertura, formando dos pestañas resistentes por espaciadas por la ranura, con el eje incluyendo además una porción inferior que tiene una sección alargada, y

un control deslizante que incluye un asiento con una pluralidad de rodillos montados de forma rotativa, con el asiento que incluye un eje hueco con una apertura menor, con el eje hueco que incluye un hombro de retención en una periferia interior del mismo, con el eje que se inserta en el eje hueco por la resistencia proporcionada por la ranura, con sección alargada del eje conectado con el hombro de retención, permitiendo que el eje para rote en torno a un eje, y con el eje teniendo una posición fija a lo largo del eje.

2. El ensamblaje de control deslizante tal como se reivindica en la reivindicación 1, con la base que incluye una placa superior con dos partes, con la base incluyendo luego la primera y la segunda pierna que se extienden hacia abajo respectivamente desde los dos lados, y con el miembro de conexión formado sobre la segunda pierna.

3. El ensamblaje de control deslizante tal como se reivindica en la reivindicación 2, con el miembro de conexión del dispositivo de eje siendo un agujero definido en la segunda pierna, y con el otro miembro de conexión de la tablilla siendo un gancho acoplado con el agujero.

OFICINA DE PATENTES
MINISTERIO DE ASUNTOS ECONOMICOS
REPÚBLICA DE CHINA

La presente es para certificar que el documento anexado es una copia verdadera de la siguiente solicitud como fue presentada en esta oficina

Fecha de la solicitud: 29 de julio de 2008.

Número de la Solicitud: 097213430

Solicitante: Hans Hung

Inventor: Hans Hung

Director General
29 de octubre de 2009

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P-2199

中華民國經濟部智慧財產局

INTELLECTUAL PROPERTY OFFICE
MINISTRY OF ECONOMIC AFFAIRS
REPUBLIC OF CHINA

茲證明所附文件，係本局存檔中原申請案的副本，正確無訛，
其申請資料如下 ：

This is to certify that annexed is a true copy from the records of this office of the application as originally filed which is identified hereunder：

申　　請　　日 ： 西元 2008 年 07 月 29 日
Application Date　　Jul 29, 2008

申　請　案　號 ： 097213430
Application No.

申　　請　　人 ： 洪天賜
Applicant(s)

發明人 / 創作人： 洪天賜
Inventor(s)

局　　長
Director General

王美花

西元 2009 年 10 月 29 日
Oct 29, 2009

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新型專利說明書

（本說明書格式、順序及粗體字，請勿任意更動，※記號部分請勿填寫）

※ 申請案號：

※ 申請日期：　　※IPC 分類：

一、新型名稱：（中文/英文）

適用於複層滑軌之窗簾移動片構造

二、申請人：（共 1 人）

姓名或名稱：（中文/英文）

洪天賜

代表人：（中文/英文）

住居所或營業所地址：（中文/英文）

彰化縣溪湖鎮彰水路一段 670 巷 32 號

國　籍：（中文/英文）

中華民國 TW

三、創作人：（共 1 人）

姓　名：（中文/英文）

洪天賜

國　籍：（中文/英文）

中華民國 TW

[5] 31

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五、中文新型摘要：

本創作係關於一種適用於複層滑軌之窗簾移動片構造，包括二個以上之移動片，各移動片之下部可供窗簾之簾片固結，且各移動片之頂部各設有二個相間隔之第一滾輪組件與第二滾輪組件，該各個滾輪組件設有複數滾輪；該第一滾輪組件與第二滾輪組件之滾輪可供跨設於不同滑軌槽道之軌道片，本創作之該複數滾輪與移動片之間，各設有一軸轉組件，令該第一滾輪組件與第二滾輪組件之複數滾輪跨設於不同之滑軌槽道而產生斜角之移動阻窒時，該軸轉組件可順應移動方向而相對軸轉而產生避震懸吊效果。縱使在跨設不同滑軌槽道下所產生之傾斜角度與阻窒可以消弭，而令移動片移動順暢，並進而令窗簾之簾片啟閉與調整開度更為順暢。

六、英文新型摘要：

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七、指定代表圖：

(一)本案指定代表圖為：第(二)圖。

(二)本代表圖之元件符號簡單說明:

(1)：第二滾輪組件

(11)：基座

(111)：滾輪

(113)：軸桿孔道

(114)：卡制緣

(2)：軸轉組件

(21)：懸吊片

(22)：軸桿

(220)：本體

(221)：彈性溝槽

(222)：彈性卡片

(223)：彈性卡片

(224)：凸緣

(3)：滑軌座

(31)：軌肋

(32A)至(32F)：滑軌槽道

(33)：軌道片

(4)：第一移動片

(5)：第二移動片

(51)：T形部

(6)：第一滾輪組件

八、新型說明：

【新型所屬之技術領域】

本創作係關於一種適用於複層滑軌之窗簾移動片構造，尤屬於一種藉由二個以上之移動片在窗簾滑軌座中進行同一方向移動構造之技術領域。

【先前技術】

窗簾可以提供遮蔽陽光、確保隱私以及作為建築之裝飾等用途，而在一個較寬大之窗戶面積下，往往藉由複數個簾片共組為一個面積較大之窗簾。而該各個簾片為了啟閉或者調整開度，必須藉由頂部固結於一個移動片，而利用移動片頂部之滾輪，在一個預設之窗簾滑軌座之單一滑軌槽道中橫移。然由於各個簾片在同一個單一滑軌槽道中橫移，因此只能獨立啟閉或是獨立調整開度。

為了進一步尋求連動性，因此有設計者設有一滑軌座，該滑軌座設有複數兩兩相互平行之滑軌，各滑軌各由兩兩軌肋相間隔形成一滑軌槽道；且各軌肋向滑軌槽道延伸一軌道片。

並設有二個以上之移動片，即至少包括第一移動片與第二移動片，各移動片之下部分別可供窗簾之簾片固結，且各移動片之頂部各設有二個相間隔之滑塊，該各個移動片之各個滑塊分別斜跨於不同之滑軌槽道。因此當第二移動片橫移時可以推擠並連帶該第一移動片被推動。

先前技術主要係藉由後一個移動片，利用跨越不同之滑軌槽道而產生斜度，而前一個移動片同樣也是利用跨越不同之滑軌槽道而產生

斜度，而後一個移動片之斜向與橫移之方向產生交錯，同時前一個移動片在不動狀態下對於後一個移動片產生阻窒，因此可以由後一個移動片的橫移來推動前一個移動片，依此類推可以產生連續推動之效果，因此使得不同之簾片可以產生連動性之啟閉或是調節開度。

但是，先前技術利用移動片，利用跨越不同之滑軌槽道而產生斜度，相對地，該斜度也會產生橫移之阻窒與不順暢，雖然利用材質本身之彈性略為收縮而仍然可以橫移，但是由於斜向之阻窒，因此導致橫移並不順暢，使得窗簾之簾片在啟閉狀態或是調節開度時不容易順遂。

【新型內容】

有鑒於先前技術之問題，本創作者認為應有一種改善之構造產生，因此設計一種適用於複層滑軌之窗簾移動片構造，主要目的在於利用一個滑軌座中有不同之滑軌槽道，可以分別令不同之窗簾簾片設置，藉此達到不限單元數之窗簾簾片，雖然跨越不同軌道，但可以達到同一個方向性之連動，且雖然跨越不同軌道而產生斜角，但是在橫移的過程仍然能夠保持順暢。

為達到前述目的，本創作者所設計之該適用於複層滑軌之窗簾移動片構造，包括二個以上之移動片，各移動片之下部可供窗簾之簾片固結，且各移動片之頂部各設有二個相間隔之第一滾輪組件與第二滾輪組件，該各個滾輪組件包括複數滾輪；該第一滾輪組件與第二滾輪組件之複數滾輪可供跨設於不同滑軌槽道之軌道片，其特徵在於：該複數滾輪與移動片之間，各設有一軸轉組件，令該第一滾輪組件與第

二滾輪組件之複數滾輪跨設於不同之滑軌槽道而產生斜角之移動阻窒時，該軸轉組件可順應移動方向而相對軸轉而產生避震懸吊效果。

本創作次一目的在於將各個第一滾輪組件以及該第二滾輪組件各包括一基座，該基座各設有複數滾輪。且該軸轉組件頂部設一軸桿，該軸桿上部設一彈性溝槽，以令該軸桿上部形成兩彈性卡片，且該軸桿上部之底部形成一較軸桿本體為大之凸緣；該基座本體設一具有下方開口之中空之軸桿孔道，該軸桿孔道之內緣設有一卡制緣，藉以令該軸桿之材質彈性迫入該中空軸桿孔道，而以凸緣鉤於該卡制緣，而形成環向可軸轉而上下可定位，達到軸轉組件易於拆裝之便利性。

【實施方式】

以下藉由圖式之輔助，說明本創作之構造、特點以及實施例，俾使貴審查人員對於本創作有更進一步之瞭解。請參閱第一圖與第二圖所示，本創作係關於一種適用於複層滑軌之窗簾移動片構造。

本創作所適用之一滑軌座(3)，設有七個平行之軌肋(31)(該數量如第六圖所示，軌肋則參閱第一圖與第二圖)，且藉由各兩軌肋(31)之相隔，形成六個具有下方開口之滑軌槽道(32A)至(32F)；且各軌肋(31)之各側面向滑軌槽道(32A)至(32F)延伸一軌道片(33)。

該移動片，就其較佳之實施例包括：

一第一移動片(4)與第二移動片(5)，該第一移動片(4)與該第二移動片(5)之下部可供窗簾之簾片(7)(如第八圖所示)固結，且該第一移動片(4)與第二移動片(5)之頂部各設有二個相間隔之第一滾輪組件(6)與第二滾輪組件(1)，該各個滾輪組件(6)、(1)為相同，以第二滾輪組

件(1)為例說明，主體包括一基座(11)，該基座(11)各設複數滾輪(111)。且該複數滾輪(111)均搭設於該軌道片(33)，而可以令各滾輪(111)在軌道片(33)上滾動，進而令移動片移動，並且可以進行窗簾簾片之啟閉與開度之調節。

又，各個移動片可以跨設在不同之滑軌槽道，以圖式而言，該第一移動片(4)之該第一滾輪組件(6)與第二滾輪組件(1)分別跨設於不同滑軌槽道(32C)、(32E)之軌道片(33)。以第二移動片(5)為例，該第一滾輪組件(6)與第二滾輪組件(1)分別跨設於不同滑軌槽道(32A)、(32C)之軌道片(33)。

又，該第一滾輪組件(6)與第二滾輪組件(1)，其與第一移動片(4)以及第二移動片(5)之間各設有一軸轉組件(2)，因此當該第一滾輪組件(6)與第二滾輪組件(1)，分別跨設於不同之滑軌槽道而產生斜角之移動阻窒時，透過該軸轉組件(2)，而可以順應移動方向而相對軸轉。

本創作各個移動片，以第二移動片(5)為例，頂部為一個 T 形部(51)，且軸轉組件(2)包括一個懸吊片(21)，該懸吊片(21)係跨設於該 T 形部(51)之外緣。藉由該懸吊片(21)係跨設於該 T 形部(51)之外緣形成一個較為穩固之跨接。

請參閱第二圖，配合第五圖所示，該軸轉組件(2)頂部設一軸桿(22)，該軸桿(22)之本體(220)上部設一彈性溝槽(221)，以令該軸桿(22)上部形成兩彈性卡片(222)、(223)，且該軸桿(22)上部之底部形成一較軸桿本體(220)為大之凸緣(224)。該第二滾輪組件(1)之基座(11)本體設一具有下方開口之中空之軸桿孔道(113)，該軸桿孔道(113)之內緣設有一卡制緣(114)，藉以令該軸桿(22)因為上部之彈性溝槽

(221)而具有之彈性，可以迫入該中空軸桿孔道(113)內，並且以凸緣(224)鉤於該卡制緣(114)，令該軸轉組件(2)可以便於拆裝，組裝後令該軸桿(22)形成環向可軸轉，而上下可定位。

請參閱第三圖與第四圖，配合第一圖所示，由於本創作該第一移動片(4)之該第一滾輪組件(6)與第二滾輪組件(1)分別跨設於不同滑軌槽道(32C)、(32E)之軌道片(33)。而第二移動片(5)之第一滾輪組件(6)與第二滾輪組件(1)分別跨設於不同滑軌槽道(32A)、(32C)之軌道片(33)。第一移動片(4)與第二移動片(5)由於有一滾輪組同時處在一個滑軌槽道(32C)上，因此當第二移動片(5)向圖式方向左移時，當碰觸到該第一移動片(4)時，即對該第一移動片(4)產生推擠以及驅迫其橫移。但是由於該第一移動片(4)之第一滾輪組件(6)與第二移動片(5)之第二滾輪組件(1)係因為分別是在跨設狀態下，因此在滑軌槽道(32C)時，是處於傾斜狀態。因此要令傾斜狀態之該第一移動片(4)之第一滾輪組件(6)與第二移動片(5)之第二滾輪組件(1)橫移，勢必產生斜角之移動阻窒，而在本創作所設之軸轉組件(2)之設置與作動下，由於該軸轉組件(2)可以於該滾輪(111)阻窒時產生避震懸吊效果。即可順應移動方向而相對軸轉，解除阻窒而造成不順暢之問題。

請參閱第三圖，配合第七圖所示，本創作之各個移動片皆相同，以該第二移動片(5)為例，該第二移動片(5)之該第一滾輪組件(6)與該第二滾輪組件(1)，其中至少有一個，較佳為兩個皆設有。以該第二滾輪組件(1)為例，設有一位移調節機構(12)，該位移調節機構(12)可以為設於軸轉組件(2)之懸吊片(21)表面上之一螺孔(121)，且設一螺絲(122)與其可為螺合，以供該軸轉組件(2)之懸吊片(21)可以在跨設之

該第二移動片(5)外緣進行位移，而使得該第一滾輪組件(6)與該第二滾輪組件(1)之相對間距可以調整。進而可以調整各個簾片(7)(如第八圖所示)之重疊狀態。例如該第一滾輪組件(6)與該第二滾輪組件(1)之相對間距越近，則兩兩移動片之疊合程度越多，因此簾片(7)之重疊也越多。反之則越少，進而決定整個窗簾之疊合密度。

綜上所述，本創作確實具備實用效果，且未見於刊物或公開使用，符合專利要件，爰依法提出專利申請。

惟，上述所陳，為本創作產業上一較佳實施例，舉凡依本創作申請專利範圍所作之等效變化，皆屬本案申請專利範圍之列。

【圖式簡單說明】

第一圖係本創作之立體圖

第二圖係本創作之立體分解圖

第三圖係第二滾輪組件之立體圖與平面剖視圖

第四圖係本創作之移動片於滑軌中之佈設平面示意圖

第五圖係本創作之第二移動片橫移而推動第一移動片之平面示意圖

第六圖係本創作適用移動片使用於六個滑軌佈設平面示意圖

第七圖係本創作之第二滾輪組件調節位移之示意圖

第八圖係本創作連結窗簾簾片之立體示意圖

【主要元件符號說明】

(1)：第二滾輪組件

(11)：基座

(111)：滾輪

(113)：軸桿孔道

(114)：卡制緣

(12).位移調節機構

(121).螺孔

(122).螺絲

(2)：軸轉組件

(21)：懸吊片

(22)：軸桿

(220)：本體

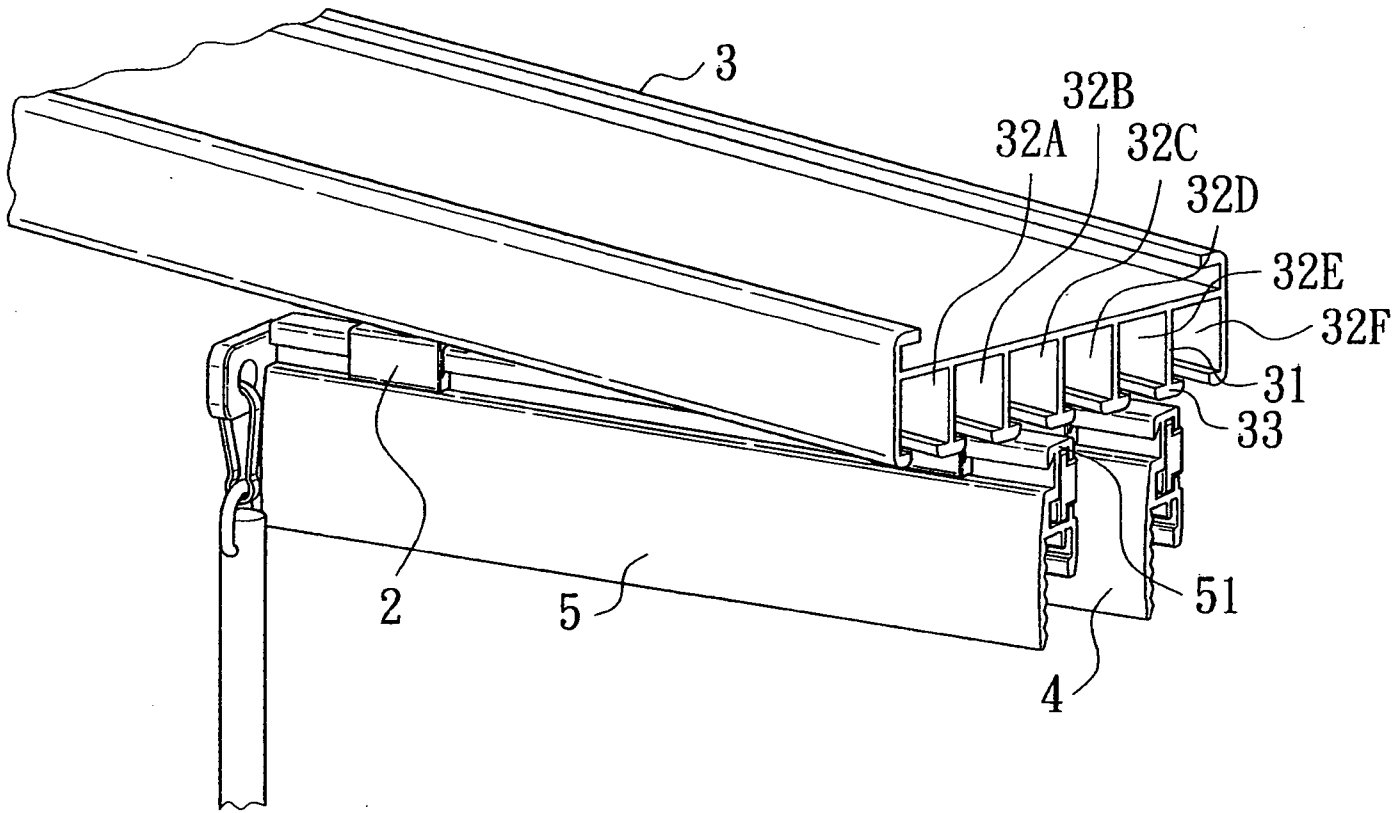
九、申請專利範圍：

1. 一種適用於複層滑軌之窗簾移動片構造，包括二個以上之移動片：各移動片之下部可供一窗簾之簾片固結，且各移動片之頂部各設有二個相間隔之第一滾輪組件與第二滾輪組件，該各個滾輪組件包括複數滾輪；該第一滾輪組件與第二滾輪組件之複數滾輪可供跨設於不同滑軌槽道之軌道片，其特徵在於：

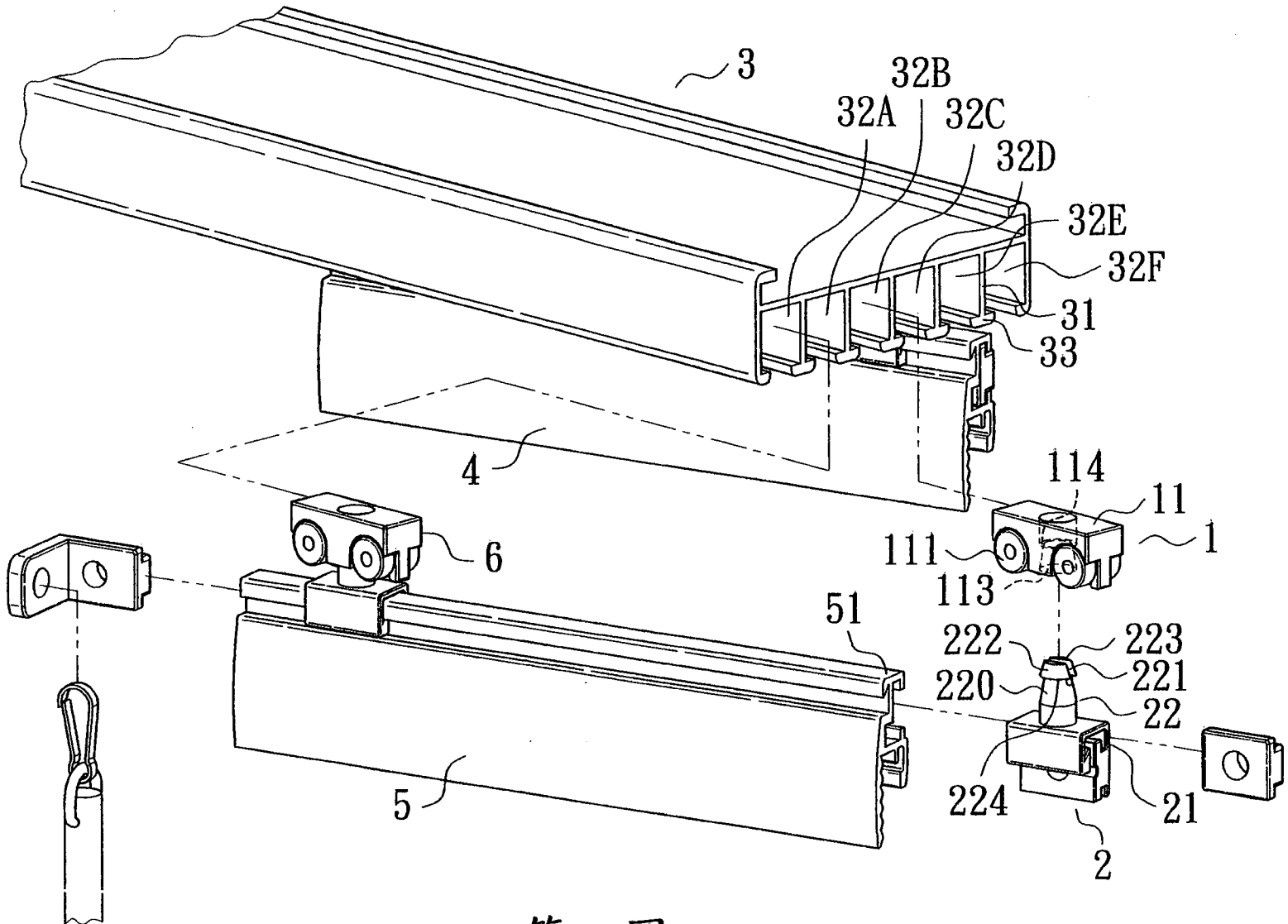
該各個第一滾輪組件與移動片之間，各設有一軸轉組件，令該第一滾輪組件與第二滾輪組件之複數滾輪，可提供跨設於不同之滑軌槽道而產生斜角之移動阻窒時，該軸轉組件可順應移動方向而相對軸轉。

2、如申請專利範圍第1項所述之適用於複層滑軌之窗簾移動片構造，其特徵在於該軸轉組件頂部設一軸桿，該軸桿上部設一彈性溝槽，以令該軸桿上部形成兩彈性卡片，且該軸桿上部之底部形成一較軸桿本體為大之凸緣；且該第一滾輪組件包括一基座，該基座本體設一具有下方開口之中空軸桿孔道，該軸桿孔道之內緣設有一卡制緣，藉以令該軸桿之材質彈性迫入該軸桿孔道，而以凸緣鉤於該卡制緣，而形成環向可軸轉而上下可定位。

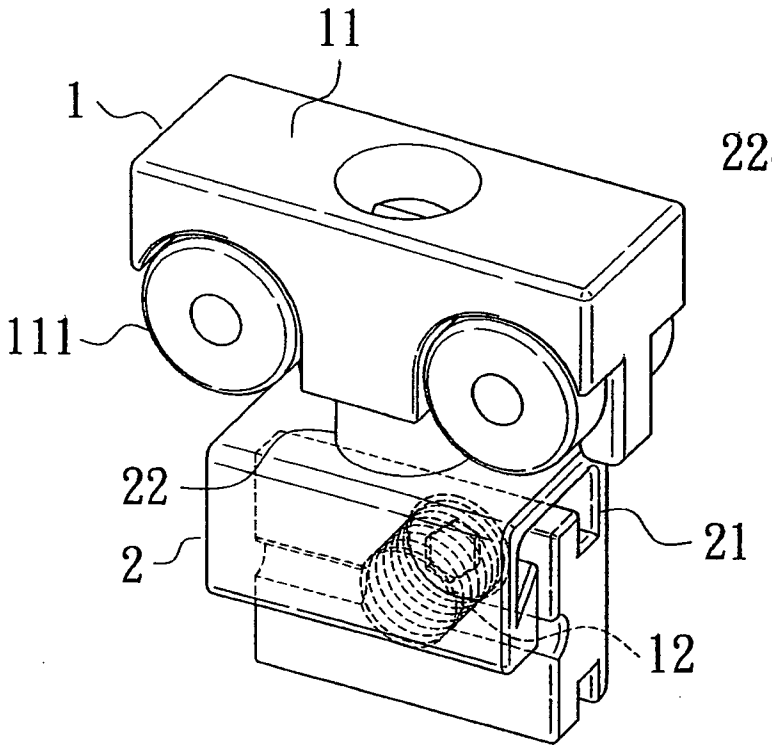
3、如申請專利範圍第1項所述之適用於複層滑軌之窗簾移動片構造，其特徵在於至少有一移動片之其中任一滾輪組件，設有一位移調節機構，且該位移調節機構包括一設於軸轉組件表面上之一螺孔，且設一螺絲與該螺孔進行螺合，以供該軸轉組件可以於該至少一移動片外緣進行位移。

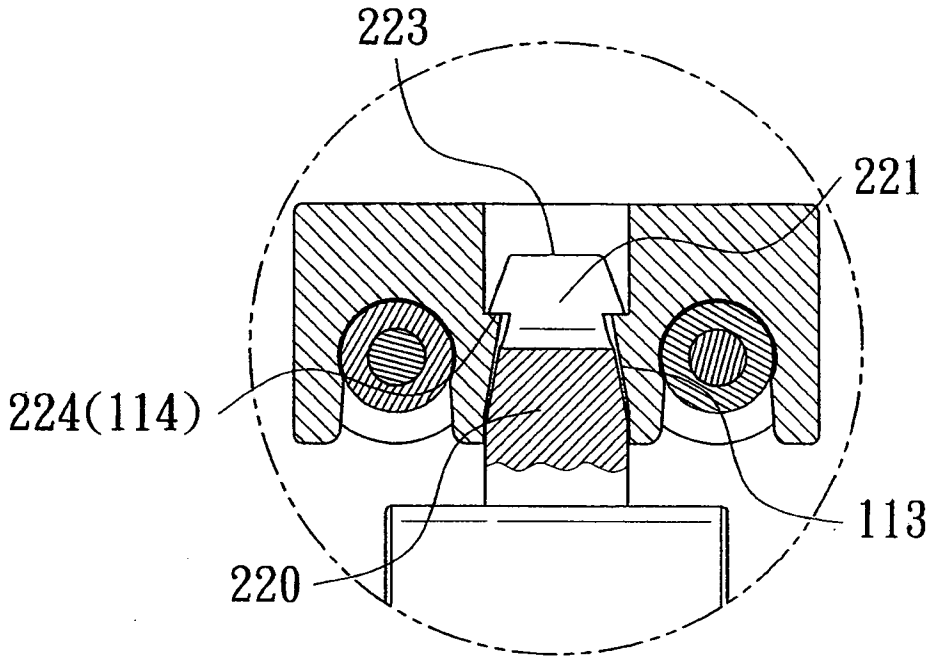


第一圖

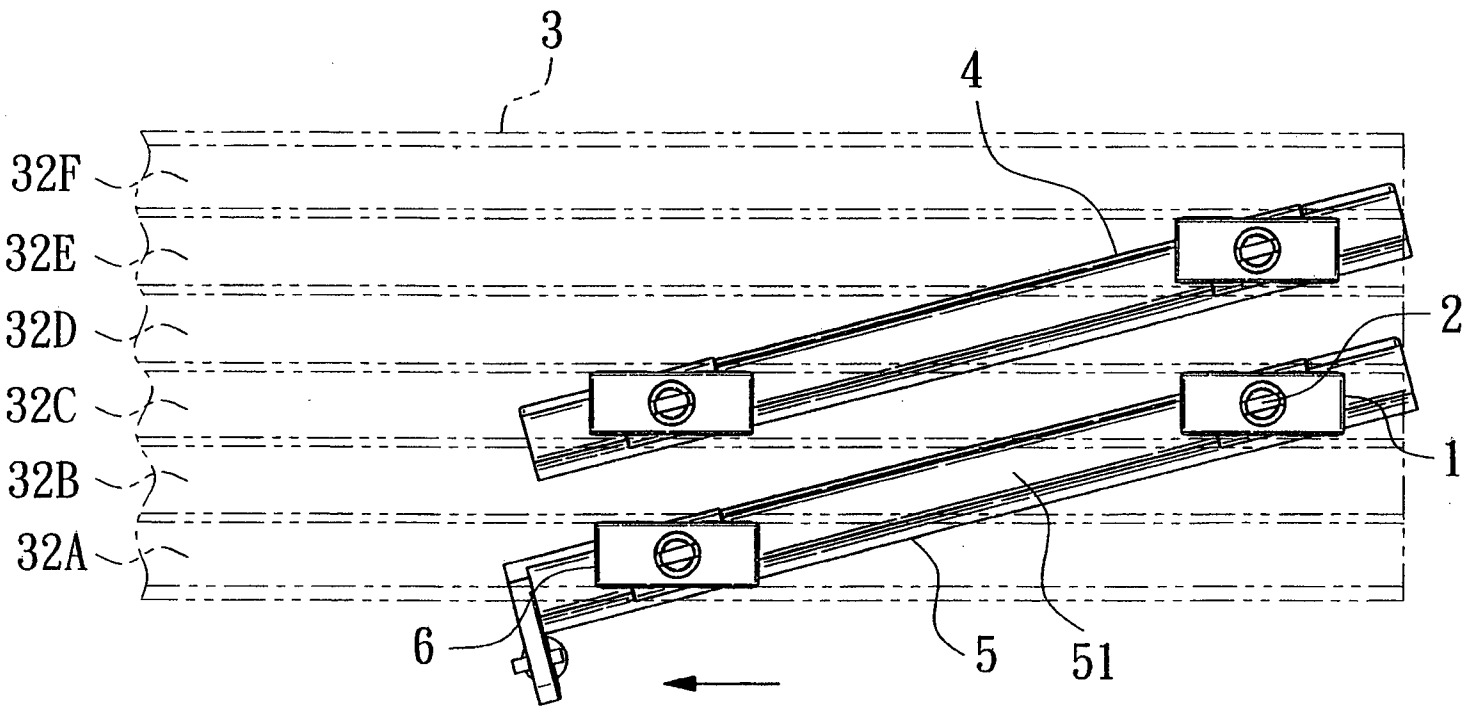

3
32B
32A
32C
32D
32E
32F
31
33
4
114
11
1
111
113
6
51
222
223
221
220
22
224
21
5
2

第二圖

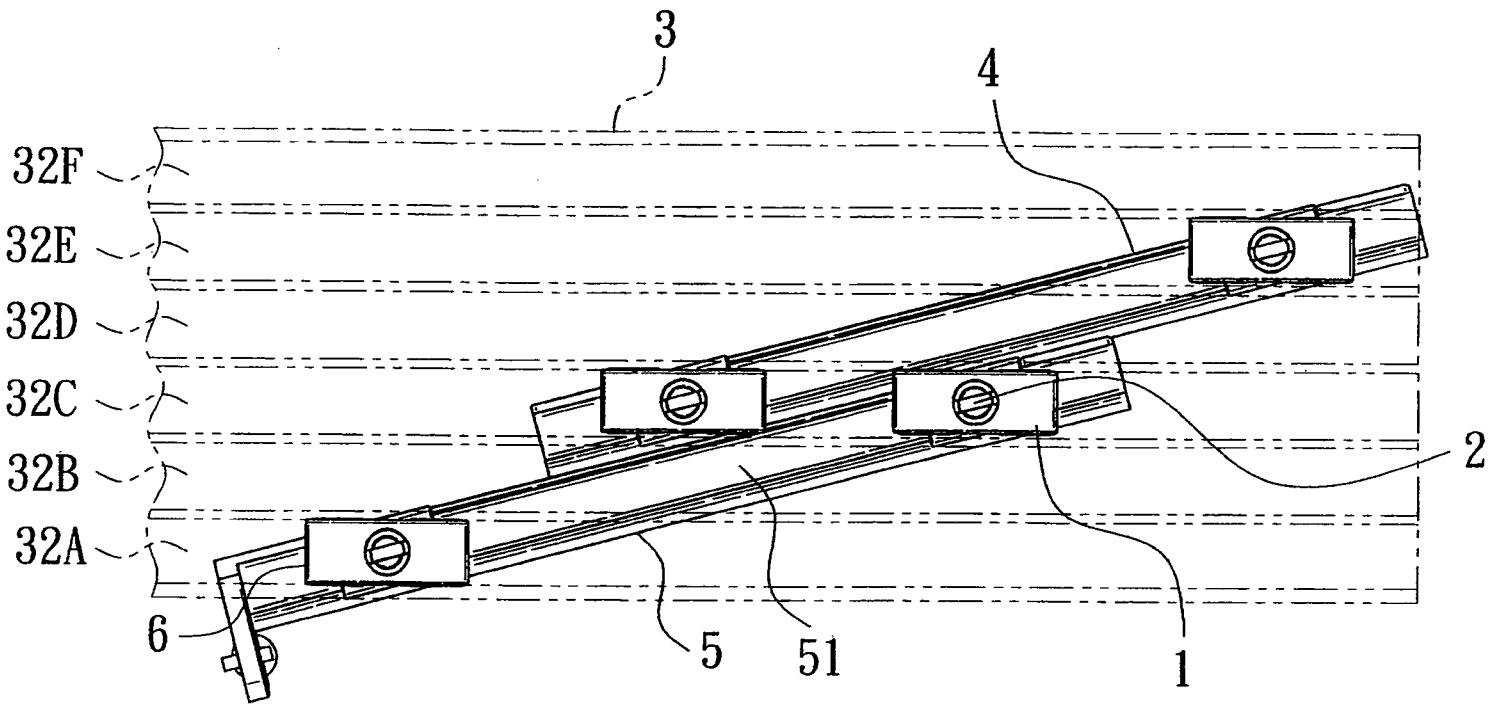




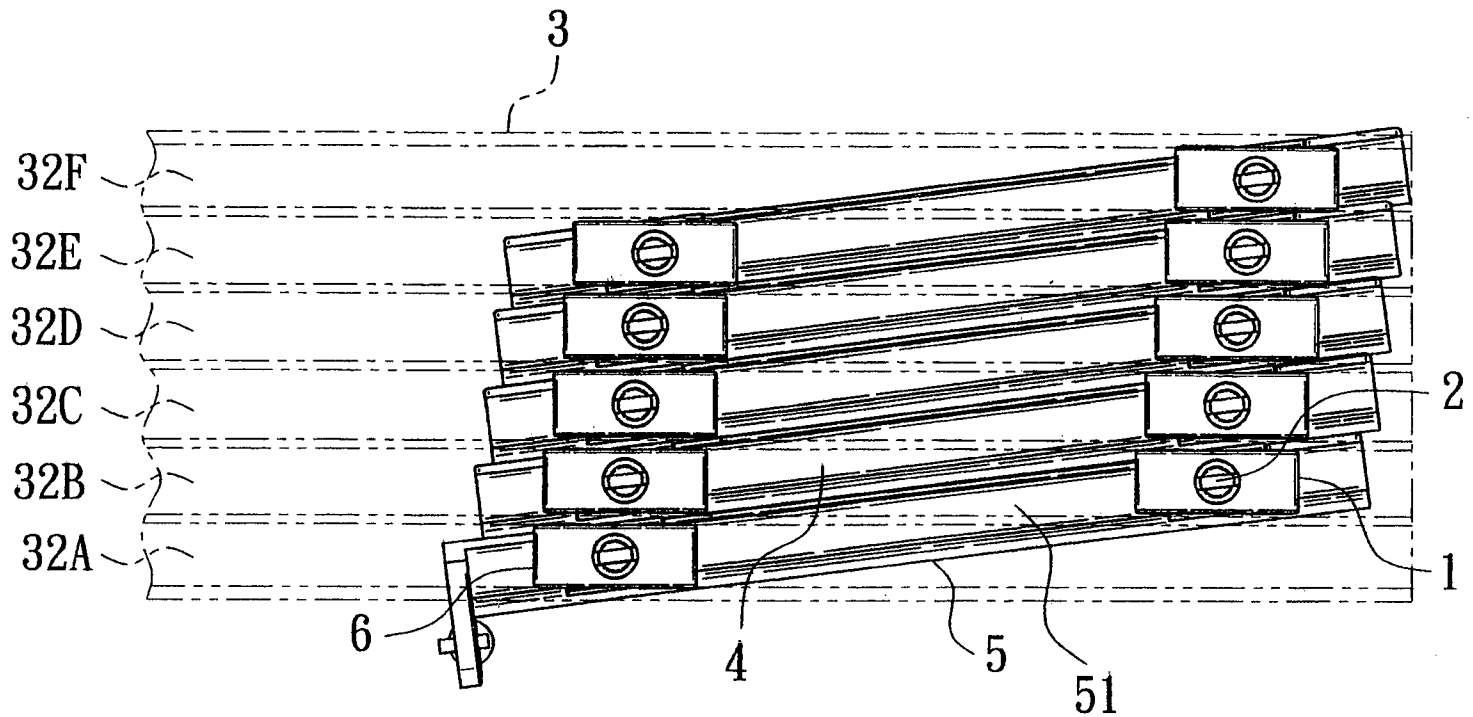
第三圖



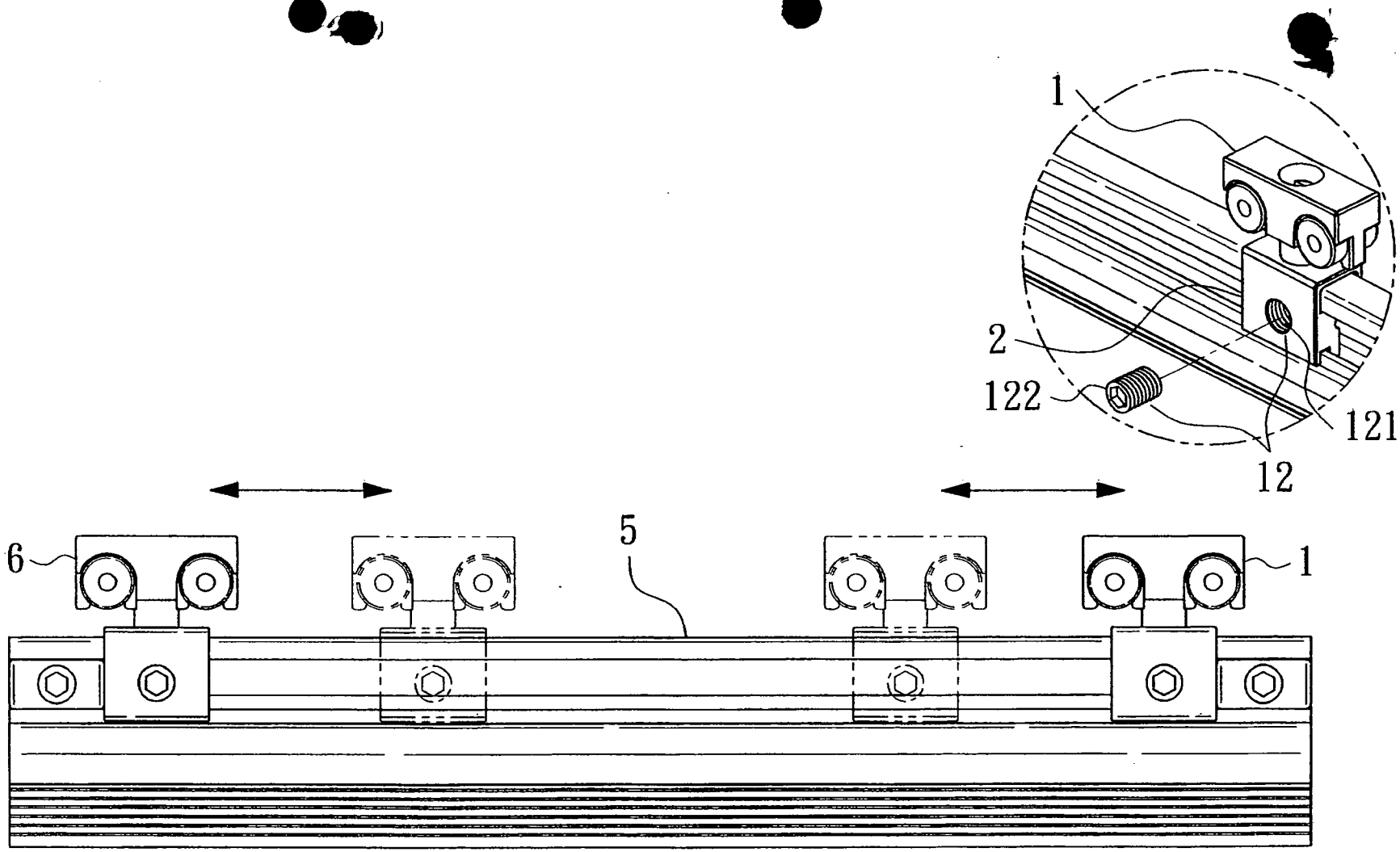
第四圖



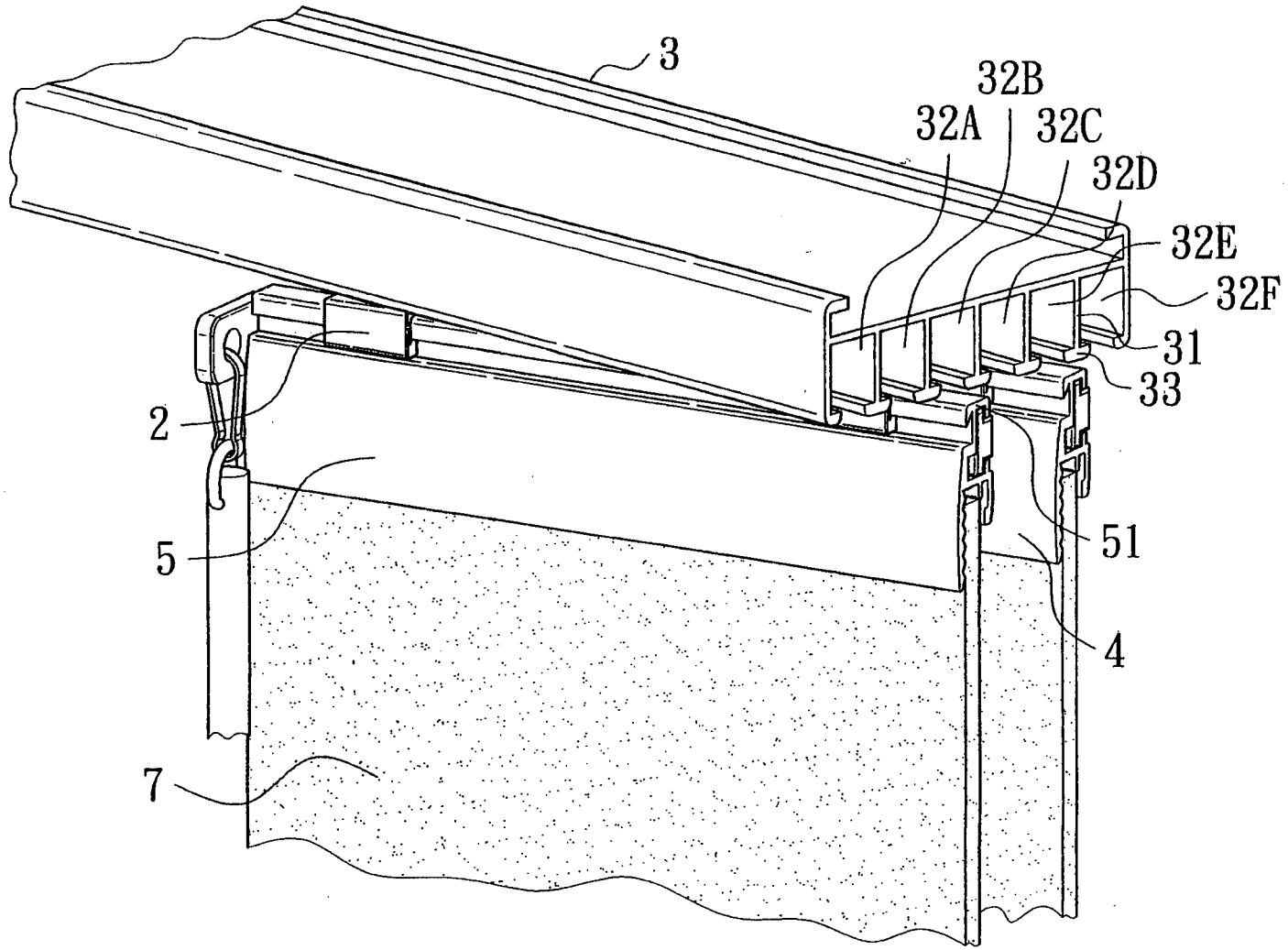
第五圖



第六圖



第七圖



第八圖

TITLE

CURTAIN MOVABLE CARRIER STRUCTURE FOR MULTILAYER TRACK

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a curtain movable carrier structure for a multilayer track, and in particular relates to a curtain movable carrier structure utilizing at least two movable carriers disposed in a curtain track base moving in a same direction.

Description of the Related Art

[0002] Curtains are used to prevent sunlight, assure privacy and as a part of a structures interior decoration. Conventionally, curtain sheets are assembled into a large curtain to cover a large window. To close or open the curtains, the curtain sheets are connected to a movable carrier, and are moved or rotated thereby. The movable carrier has a roller formed on a top portion thereof. Conventionally, the curtain sheet moves in a single predetermined track base via the roller. However, curtain sheets are moved in a single predetermined track base, and the curtain sheets only can be moved or rotated individually to close or open the curtain.

[0003] Accordingly, to improve movement of curtain sheets, a track base has been developed comprising a plurality of tracks. The tracks are parallel to each other and ribs of the track extend to form track grooves. A track sheet is formed on a free end of the ribs.

[0004] Additionally, at least two movable carriers (for example, a first movable carrier and a second movable carrier) are disposed on the curtain sheet. The movable carriers are connected to the curtain sheet with a bottom portion thereof. Two separated sliding blocks are formed on the movable carrier. The sliding blocks of the movable carriers are cross connected to different tracks. When the second movable carrier is moved, the second

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movable carrier pushes and moves the first movable carrier.

[0005] Conventionally, a rear movable carrier is cross connected to different tracks to generate an oblique angle. A front movable carrier is also cross connected to different tracks to generate an oblique angle. A moving direction of the rear movable carrier interlaces with an oblique direction thereof. The front movable carrier restricts the rear movable carrier by striction force. The rear movable carrier pushes the front movable carrier, and rows of the movable carriers are thus pushed one by one. The curtain sheets therefore can be moved or oriented to open or close the curtains.

[0006] Conventionally, the movable carriers are cross connected to different tracks to generate the oblique angle, and moved via material elasticity. However, the oblique angle also blocks the movement of the movable carriers and generates uneven movement. Thus, conventional curtain sheets do not open or close smoothly.

BRIEF SUMMARY OF THE INVENTION

[0007] A detailed description is given in the following embodiments with reference to the accompanying drawings.

[0008] A curtain movable carrier structure for a multilayer track is provided. In the invention, curtain sheets are cross connected to a plurality of tracks, and are moved simultaneously toward a same direction. Due to the invention, the curtain sheets can be moved smoothly, and resistance caused by oblique angles is prevented.

[0009] The curtain movable carrier structure of the invention comprises at least two movable carriers. A bottom portion of each movable carrier is fixed with a curtain sheet, a top portion of each movable carrier has a first roller member and a second roller member. The first roller member is separated from the second roller member, and each roller member has a plurality of rollers. The rollers of the first roller member and the second roller member are cross connected to track sheets of different tracks. A pivot member is

disposed between the first roller member and the movable carrier, wherein when the rollers of the first roller member and the second roller member are blocked by an oblique angle due to cross connection to different tracks, the pivot member pivots with a moving direction of the roller to suspend the rollers.

[0010] Additionally, a shaft is disposed on a top portion of the pivot member. An elastic groove is formed on the shaft to form two elastic wedging portions on a top portion of the shaft. A flange is a formed on an end of the shaft. A radius of the flange is greater than that of the shaft. The first roller member comprises a base and the base has a shaft through hole with a lower opening. A wedging structure is formed on an inner wall of the shaft through hole. The shaft is elastically inserted into the shaft through hole. The flange wedges the wedging structure. The shift is rotatable and a vertical position thereof is fixed. The pivot member is easily assembled.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention can be more fully understood by reading the subsequent detailed description and examples with references made to the accompanying drawings, wherein:

[0011] Fig. 1 is a perspective view of an embodiment of a curtain movable carrier structure according to the invention;

[0012] Fig. 2 is a exploded view of an embodiment of a curtain movable carrier structure according to the invention;

[0013] Fig. 3 shows a perspective view and a sectional view of an embodiment of a second roller member according to the invention;

[0014] Fig. 4 shows an embodiment of a movable carrier disposed in a track according to the invention;

[0015] Fig. 5 shows an embodiment of a second movable carrier pushing a first movable carrier according to the invention;

[0016] Fig. 6 shows an embodiment of movable carriers correspondingly disposed in six tracks according to the invention;

[0017] Fig. 7 shows position of an embodiment of a second roller member being adjusted according to the invention; and

[0018] Fig. 8 shows a perspective view of an embodiment of a curtain movable carrier structure connected with curtain sheets according to the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0019] The following description is of the best-contemplated mode of carrying out the invention. This description is made for the purpose of illustrating the general principles of the invention and should not be taken in a limiting sense. The scope of the invention is best determined by reference to the appended claims.

[0020] As shown in Figs. 1 and 2, the invention relates to a curtain movable carrier structure for a multilayer track.

[0021] The curtain movable carrier structure of the invention is adapted for a track base 3. The track base 3 has seven ribs 31 parallel to each other (as shown in Figs. 1, 2 and 6). The ribs 31 are separated from each other to form six track grooves 32A to 32F. The track grooves 32A to 32F have lower openings. The ribs 31 extend outward to form the track grooves 32A to 32F, and a track sheet 33 is formed on a free end of each of the ribs 31.

[0022] In an embodiment, a first movable carrier 4 and a second movable carrier 5 are provided, which are connected to curtain sheets 7 (as shown in Fig. 8). A first roller member 6 and a second roller member 1 are disposed on a top portion of each of the first movable carrier 4 and the second movable carrier 5. The first roller member 6 and the second roller member 1 are the same, and are separated from each other. A detailed structure of the roller members is described with the second roller member as an example. A body comprises a base 11. The base 11 has a plurality of rollers 111. The rollers 111 are

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disposed on the track sheets 33, and slide thereon to move the movable carriers and to control the position and orientation of the curtain sheets.

[0023] Each movable carrier can be cross connected to different tracks. For example, the first roller member 6 and the second roller member 1 of the first movable carrier 4 are cross connected to track sheets of the track 32C and track 32E. As an example, for the second movable carrier 5, the first roller member 6 and the second roller member 1 are cross connected to track sheets 33 of the track 32C and track 32A.

[0024] A pivot member 2 is disposed between each roller member and each movable carrier. The first roller member 6 and the second roller member 1 are cross connected to different tracks to form an oblique angle, and resistance is thus generated. The pivot member 2 allows the first roller member 6 and the second roller member 1 to pivot with a direction to reduce resistance.

[0025] As an example for the second movable carrier 5, the T-shaped portion 51 is formed on a top portion of the second movable carrier 5. The pivot member 2 comprises a suspension sheet 21. The suspension sheet 21 is cross connected to outer edges of the T-shaped portion 51 to form a secured connection.

[0026] With reference to Figs. 2 and 5, a shaft 22 is disposed on a top portion of the pivot member 2. A top portion of the body 220 of the shaft 22 has an elastic groove 221. Two elastic wedging portions 222 and 223 are formed on the top portion of the shaft 22. A flange 224 is a formed on an end of the shaft 22, and a radius of the flange 224 is greater than that of the shaft 22. A base 11 of the second roller member 1 has a shaft through hole 113 with a lower opening. A wedging structure 114 is formed on an inner wall of the shaft through hole 113. The shaft 22 is elastically inserted into the shaft through hole 113 via the elasticity of the elastic groove 221, and the flange 224 wedges the wedging structure 114. The pivot member 2 is easily assembled, and the shift 22 is rotatable and a vertical position

thereof is fixed.

[0027] With reference to Figs. 1, 3 and 4, the first roller member 6 and the second roller member 1 of the first movable carrier 4 are cross connected to track sheets 33 of different tracks 32C and 32E. The first roller member 6 and the second roller member 1 of the second movable carrier 5 are cross connected to track sheets 33 of different tracks 32A and 32C. The first movable carrier 4 and the second movable carrier 5 simultaneously have roller members located on track 32C. Therefore, when the second movable carrier 5 is moved leftward, the second movable carrier 5 pushes and moves the first movable carrier 4. The first roller member 6 of the first movable carrier 4 and the second roller member 1 of the second movable carrier are cross connected to the tracks, and thus, the first roller member 6 of the first movable carrier 4 and the second roller member 1 of the second movable carrier are tilted. When the first roller member 6 of the first movable carrier 4 and the second roller member 1 of the second movable carrier are moved, the pivot member 2 suspends the rollers 111 and pivots with the moving direction. The resistance caused by oblique angles is thus prevented.

[0028] With reference to Figs. 3 and 7, the movable carriers of the invention are the same, and the second movable carrier 5 is described as an example. The second roller member 1 has a movement adjusting structure 12, the movement adjusting structure 12 comprises a thread hole 121 formed on a surface of a suspension sheet 21 of the pivot member 2. A screw nail 122 screws the thread hole 121 allowing the pivot member 2 to move on an outer edge of the second movable carrier 5. The gap between the first roller member 6 and the second roller member 1 can be modified, and overlapping of the curtain sheets 7 can be adjusted (as shown in Fig. 8). For example, when the gap between the first roller member 6 and the second roller member 1 is decreased, an overlapping degree of the movable carriers increases, and an overlapping degree of the curtain sheets increases. Thus,

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the overlapping degree of the curtain sheets can be controlled. The movement adjusting structure can be formed on the first roller member, the second roller member, or both.

[0029] While the invention has been described by way of example and in terms of the preferred embodiments, it is to be understood that the invention is not limited to the disclosed embodiments. To the contrary, it is intended to cover various modifications and similar arrangements (as would be apparent to those skilled in the art). Therefore, the scope of the appended claims should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements.

What is claimed is:

1. A curtain movable carrier structure for a multilayer track, comprising:

at least two movable carriers, wherein a bottom portion of each movable carrier is fixed with a curtain sheet, a top portion of each movable carrier has a first roller member and a second roller member, the first roller member is separated from the second roller member, each roller member has a plurality of rollers, the rollers of the first roller member and the second roller member are cross connected to track sheets of different tracks; and

a pivot member disposed between the first roller member and the movable carrier, wherein when the rollers of the first roller member and the second roller member are blocked by an oblique angle due to being cross connected to different tracks, the pivot member pivots with a moving direction of the roller.

2. The curtain movable carrier structure as claimed in claim 1, wherein a shaft is disposed on a top portion of the pivot member, and an elastic groove is formed on the shaft to form two elastic wedging portions on a top portion of the shaft, a flange is a formed on a end of the shaft, a radius of the flange is greater than that of the shaft, the first roller member comprises a base, the base has a shaft through hole with a lower opening, a wedging structure is formed on an inner wall of the shaft through hole, the shaft is elastically inserted into the shaft through hole, the flange wedges the wedging structure, and the shift is rotatable and a vertical position thereof is fixed.

3. The curtain movable carrier structure as claimed in claim 1, wherein one of the roller member of at least one of the movable carrier has a movement adjusting structure, the movement adjusting structure comprises a thread hole formed on a surface of the pivot member, and a screw nail screws the thread hole allowing the pivot member to move on an outer edge of the movable carrier.

ABSTRACT OF THE DISCLOSURE

A curtain movable carrier structure is provided comprising at least two movable carriers. A bottom portion of each movable carrier is fixed with a curtain sheet, a top portion of each movable carrier has a first roller member and a second roller member. The first roller member is separated from the second roller member and each roller member has a plurality of rollers. The rollers of the first roller member and the second roller member are cross connected to track sheets of different tracks. A pivot member is disposed between the first roller member and the movable carrier, wherein when the rollers of the first roller member and the second roller member are blocked by an oblique angle due to being cross connected to different tracks, the pivot member pivots with a moving direction of the roller to suspend the rollers.

SO

ESTRUCTURA PORTADORA MOVIL PARA CORTINA CON RIELES MULTIPLES

ANTECEDENTES DE LA INVENCION

Campo de la invención

[0001] La presente invención se relaciona con una estructura para portador móvil para cortina con rieles múltiples, y en particular se relaciona con una estructura para portador móvil que utiliza al menso dos portadores móviles dispuestos sobre un riel de cortina que se mueven en la misma dirección.

Descripción del arte relacionado

[0002] La cortinas se empelan para prevenir la luz del sol, asegurar la privacidad y como parte de la decoración interior de estructuras. Convencionalmente, las tablillas de cortina se ensamblan en una sola cortina para cubrir una ventana grande. Para cerrar o abrir cortinas, las tablillas de cortina se conectan a un portador móvil, y se mueve y rotan por este medio. El portador móvil tiene un rodamiento formado en la parte superior del mismo. Convencionalmente, la tablillas de cortina se mueve sobre un solo riel base predeterminado, y las tablillas de cortina solo pueden moverse o rotarse individualmente para cerrar o abrir la cortina.

[0003] En concordancia, para mejorar el movimiento de las láminas de cortina, se ha desarrollado un riel base que comprende una pluralidad de rieles. Los rieles son paralelos entre si y las costillas de los rieles se extienden para formar canales. Una lámina de riel se forma en el extremo libre de las costillas.

[0004] Adicionalmente, se disponen al menos dos portadores móviles (por ejemplo un primer portador móvil y un segundo portador móvil) sobre una tablilla de cortina. Los portadores móviles están conectados a la tablilla de cortina por una porción inferior de los mismos. Se forman dos bloques deslizantes separados en el portador móvil. Cuando el segundo portador móvil es movido, el segundo portador móvil empuja y mueve el primer portador móvil.

[0005] Convencionalmente, un portador móvil posterior es conectado a los diferentes rieles para generar un ángulo oblicuo. Un portado móvil frontal también es conectado de manera cruzada a diferentes rieles para generar un ángulo oblicuo. Una dirección de movimiento del portador móvil posterior se entrelaza con una dirección oblicua del mismo. El portador móvil frontal restringe al portado móvil posterior por fuerza de estricción. El portador móvil posterior empuja al portador móvil frontal, y las hileras de portadores móviles son así empujados uno por uno. Las tablillas de cortina por lo tanto pueden moverse u orientarse para abrir o cerrar la cortina.

[0006] Convencionalmente, los portadores móviles están conectados de manera entrecruzada a diferentes rieles para generar un ángulo oblicuo, y se mueven mediante elasticidad del material. Sin embargo, el ábngulo oblicuo también bloquea el movimiento de los portadores móviles y genera un movimiento

irregular. Por lo tanto, las tablillas de cortinas convencionales no se abren y cierran de manera suave.

BREVE RESUMEN DE LA INVENCION

[0007] Se da una descripción detallada en las siguientes modalidades en referencia a los dibujos acompañantes.
[0008] Se proporciona una estructura portadora móvil para rieles de múltiples capas. En la invención, las tablillas de cortinas están conectadas de manera cruzada a una pluralidad de rieles y se mueven simultáneamente hacia y desde la misma dirección. Debido a la invención, las tablillas de cortinas pueden moverse suavemente, y las resistencia causada por los ángulos oblicuos se previene.
[0009] La estructura portadora móvil de cortina de la invención comprende al menso dos portadores móviles. Una porción inferior de cada portador móvil esta fija con una tablilla de cortina, una porción superior de cada portador móvil tiene un primer miembro rodante. El primer miembro rodante esta separado del segundo miembro rodante, y cada miembro rodante tiene una pluralidad de ruedecillas. Las ruedecillas del prime miembro rodante y del segundo miembro rodante están conectadas de manera cruzada a láminas de rieles de diferentes rieles. Un miembro de pivote esta dispuesto entre el primer miembro rodante y el portador móvil, en donde las ruedecillas del primer miembro rodante y del segundo miembro rodante están bloqueadas por un ángulo oblicuo debido a la conexión cruzada a diferentes rieles, el miembro de pivote pivota con una dirección de movimiento de los rodamientos para suspender las ruedecillas.
[0010] Adicionalmente, un eje es dispuesto en la porción superior del miembro de pivote. Una ranura elástica esta formada sobre el eje para formar dos porciones de cuña en la parte superior del eje. Una brida es formada en un extremo del eje. Un radio de la brida es mayor que un radio del eje. Un primer miembro de rodamiento comprende una base y la base tiene un orificio para paso del eje con una abertura inferior. Una estructura de cuña es formada sobre una pared interna del orificio para paso del eje. El eje es insertado elásticamente en el orificio para paso del eje. La brida se acuña en la estructura de cuña. El eje rota y una posición vertical del mismo esta fija. El miembro de pivote se ensambla con facilidad.

BREVE DESCRIPCION DE LOS DIBUJOS

La presente invención puede entenderse más completamente leyendo la siguiente descripción detallada y los ejemplos con referencia a los dibujos acompañantes en donde:
[0011] Fig. 1 es una vista en perspectiva de una modalidad de una estructura móvil de portador de cortina de acuerdo con la invención.
[0012] Fig. 2 es una vista en explosión de una modalidad de una estructura móvil de portador de cortina de acuerdo con la invención.

[0013] Fig. 3 es una vista en perspectiva de de una vista de sección de una modalidad de una estructura móvil de portador de cortina de acuerdo con la invención.
[0014] Fig.4 es una modalidad de una estructura móvil de portador de cortina dispuesto en un riel de acuerdo con la invención.
[0015] Fig. 5 muestra una modalidad de un segundo portador móvil empujando un primer portador móvil de acuerdo con la invención.
[0016] Fig. 6 muestra una modalidad de portadores que dispuestos correspondientemente sobre seis rieles de acuerdo con la invención.
[0017] Fig. 7 muestra una modalidad de un segundo miembro rodante siendo ajustado de acuerdo con la invención, y
[0018] Fig. 8 muestra una vista en perspectiva de una modalidad de una estructura móvil de portador de cortina conectada a las tablillas de acuerdo con la invención.

DESCRIPCION DETALLADA DE LAINVENCION

[0019] La siguiente e la descripción de la mejor modalidad de llevar a cabo la invención. Esta descripción se hace para propósitos ilustrativos de los principios generales de la invención y no debe tomarse en el sentido limitante. El alcance de la invención se determina mejor en referencia a las reivindicaciones adjuntas.
[0020] Como se muestra en las figuras 1 y 2, la invención se relaciona con una estructura móvil de portador de cortina para múltiples rieles.
[0021] La estructura móvil de portador de cortina de la invención se adapta para un riel base 3. El riel base 3 tiene siete costillas 31 paralelas entre si (como se muestran en las figuras 1, 2 y 6). La costillas 31 están separadas una de otra para formar seis canales de rieles 32A a 32F. Los canales de rieles 32A a 32F tienen aberturas inferiores. Las costillas 31 se extienden hacia fuera para formar los canales de rieles 32A a 32F, y una lámina de riel es formada en el extremo libre de cada costilla 31.
[0022] En una modalidad, un primer portador móvil 4 y un segundo portador móvil 5 son proporcionados, los cuales se conectan a las tablillas de cortinas 7 (como se muestran en la Fig. 8). Un Reimer miembro rodante 6 y un segundo miembro rodante 1 están dispuestos sobre una porción superior de cada uno del primer portador móvil 4 y el segundo portador móvil 5. El primer miembro rodante 6 y el segundo miembro rodante 1 son el mismo, y están separados uno de l otro. Una estructura detallada de los miembros rodantes se describe con el segundo miembro rodante como ejemplo. Un cuerpo comprende una base 11. La base 11 tiene una pluralidad de ruedecillas 111. Las ruedecillas 111 están dispuestas en las hojas de pista 33, y se deslizan sobre las mismas para mover los portadores móviles y para controlar la posición y la orientación de las hojas de cortina.
[0023] Cada portador móvil puede ser conectado de forma cruzada a las diferentes pistas. Por ejemplo, el primer miembro de rodillo 6 y el segundo miembro de rodillo 1 del primer portador móvil 4 están conectados de forma cruzada a las hojas de pista de la pista 32C y la pista 32E. Como un ejemplo, para

el segundo portador móvil 5, el primer miembro de rodillo 6 y el segundo miembro de rodillo 1 están conectados de forma cruzada a las hojas de pista 33 de la pista 32C y la pista 32A.

[0024] Un miembro de pivote 2 está dispuesto entre cada miembro de rodillo y cada portador móvil. El primer miembro de rodillo 6 y el segundo miembro de rodillo 1 están conectados de forma cruzada a las diferentes pistas para formar un ángulo oblicuo, y así se general la resistencia. El miembro de pivote 2 le permite al primer miembro de rodillo 6 y al segundo miembro de rodillo pivotear con una dirección para reducir la resistencia.

[0025] Como un ejemplo para el segundo portador móvil 5, la porción con forma de T 51 se forma en una porción superior del segundo portador móvil 5. El miembro de pivote 2 comprende una hoja de suspensión 21. La hoja de suspensión 21 se conecta de forma cruzada con los bordes externos de la porción con forma de T 51 para formar una conexión segura.

[0026] Con referencia a las figuras 2 y 5, un eje 22 es dispuesto en una porción superior del miembro de pivote 2. Una porción superior del cuerpo 220 del eje 22 tiene una ranura elástica 221. Las porciones de cuña elásticas 222 y 223 se forman en la porción superior del eje 22. Una pestaña 226 es formada en un extremo del eje 22, y un radio de la pestaña 224 es mayor que el del eje 22. Una base 11 del segundo miembro de rodillo 1 tiene un agujero 113 que atraviesa el eje con una abertura inferior. Una estructura de cuña 114 se forma en una pared interna del agujero 113 que atraviesa el eje. El eje 22 es insertado de forma elástica en el agujero 113 que atraviesa el eje por medio de la elasticidad de la ranura elástica 221, y la pestaña 224 acuña la estructura de cuña 114. El miembro de pivote 2 es ensamblado fácilmente, y el eje 22 es giratorio y se fija una posición vertical del mismo.

[0027] En relación con la figura 1, 3 y 4, el primer miembro de rodillo 6 y el segundo miembro de rodillo 1 de la primer ensamblaje de control deslizante es[redacted] conectado a la tablilla 33 de diferentes tablillas 32C y 32E. El primer miembro de rodillo 6 y el primer miembro de rodillo 1 del segundo ensamblaje de control 5 están conectados a las tablillas 33 de diferentes tablillas 32 A y 32C El primer ensamblaje de control 4 y el segundo ensamblaje 5 simultáneamente tiene miembros de rodillo localizados en la tablilla 32. Por lo tanto, cuando el segundo ensamblaje de control 5 es movido a la izquierda, el segundo ensamblaje de control 5 empuja y mueve el primer ensamblaje de control 4. El primer miembro de rodillo 6 del primer miembro de control 4 y del segundo miembro de control 5 están conectados a las tablillas, y por lo tanto, el primer miembro de rodillo 6 del primer ensamblaje de control 4 y el segundo miembro de rodillo 1 del segundo ensamblaje de control 6 del primer ensamblaje de control 4 y el y el segundo miembro de rodillo 1 del segundo ensamblaje de control son inclinados. Cuando el primer miembro de rodillo 6 del primer ensamblaje de control 4 y el segundo miembro de control 1 del segundo miembro de control son movidos, el miembro de giro 2 suspende los rodillos 111 y los giros con la dirección del movimiento. La resistencia causada por los ángulos oblicuos es por lo tanto prevenida.

[0028] Con referencia a las figuras 3 y 7, los portadores móviles de la invención son los mismos, y el segundo portador móvil 5 se describe como un ejemplo. El segundo miembro de rodillo 1 tiene una estructura de ajuste de movimiento 12, la estructura de ajuste de movimiento 12 comprende un agujero de hilo 121 formado en una superficie de una hoja de suspensión 21 del miembro de pivote 2. Una uña de tornillo 122 se atornilla en el agujero de hilo 121 permitiendo que el miembro de pivote 2 se mueva en un borde exterior del segundo portador móvil 5. La distancia entre el primer miembro de rodillo 6 y el segundo miembro de rodillo 1 puede ser modificada, y la superposición de las hojas de cortina 7 puede ser ajustada (como se muestra en la figura 8). Por ejemplo, cuando la distancia entre el primer miembro de rodillo 6 y el segundo miembro de rodillo 1 disminuye, un grado de superposición de los portadores móviles aumenta, y un grado de superposición de las hojas de cortina aumenta. Así, el grado de superposición de las hojas de cortina puede ser controlado. La estructura de ajuste de movimiento puede ser formada en el primer miembro de rodillo, el segundo miembro de rodillo, o ambos.

[0029] En tanto que la invención se ha descrito por medio de ejemplos y en términos de las modalidades preferidas, ha de entenderse que la invención no se encuentra limitada a las modalidades reveladas. Por el contrario, se tiene previsto cubrir varias modificaciones y disposiciones que pudieran ser aparentes para los versados en la materia. En consecuencia, el alcance de las reivindicaciones adjuntas debe ser concedido a la interpretación más amplia de tal modo que abarque todas las modificaciones y disposiciones.

REIVINDICACIONES

Lo que se reivindica es:

1. Una estructura de portador móvil para cortina para una corredera de capas múltiples, que comprende:

al menos dos portadores móviles, en donde una porción inferior de cada portador móvil esta unida a una cortina, una porción superior de cada portador móvil tiene un primer miembro rodante y un segundo miembro rodante, el primer miembro rodante esta separado del segundo miembro rodante, cada miembro rodante tiene una pluralidad de ruedecillas, las ruedecillas del primer miembro rodante y las ruedecillas del segundo miembro rodante están conectadas de manera cruzada con capas correderas de diferentes correderas; y

un miembro de pivote dispuesto entre el primer miembro rodante y el portador móvil, en donde cunado las ruedecillas del primer miembro rodante y el segundo miembro rodante están bloqueadas por un ángulo oblicuo debido a que están conectadas de manera cruzada a diferentes correderas, el miembro de pivote pivota con un sentido de movimiento del miembro rodante.

2. La estructura de portador móvil para cortina de acuerdo con la reivindicación 1, en donde se dispone un eje en una porción superior del miembro de pivote, y se forma una canaleta elástica en el eje para formar dos porciones de cuña en una porción superior del eje, una brida es formada en un extremo del eje, un radio de la brida es mayor que el de el eje, el primer miembro rodante comprende una base, la base tiene un orificio para el paso del eje con una abertura inferior, una estructura de cuña es formada en una pared interior del orificio para paso del eje, el eje es insertado elásticamente en el orificio para paso del eje, la brida asegura la estructura de cuña, y el movimiento es giratorio y una posición vertical del mismo esta fija.

3. La estructura de portador móvil para cortina de acuerdo con la reivindicación 1, en donde uno de los miembros rodantes de la menos uno de los portadores móviles tiene una estructura de ajuste del movimiento, la estructura de ajuste del movimiento comprende un orificio roscado formado en una superficie del miembro de pivote, y un tornillo es atornillado en el orificio roscado permitiéndole al miembro de pivote moverse sobre un borde exterior del portador móvil.