



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 807 393 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
01.04.1998 Bulletin 1998/14

(51) Int. Cl.⁶: **A47H 5/02, A47H 15/02**

(43) Date of publication A2:
19.11.1997 Bulletin 1997/47

(21) Application number: **97107884.5**

(22) Date of filing: **14.05.1997**

(84) Designated Contracting States:
DE FR GB

(30) Priority: **17.05.1996 JP 147976/96**

(71) Applicant:
TOYOTA SHATAI KABUSHIKI KAISHA
Kariya-shi Aichi-ken (JP)

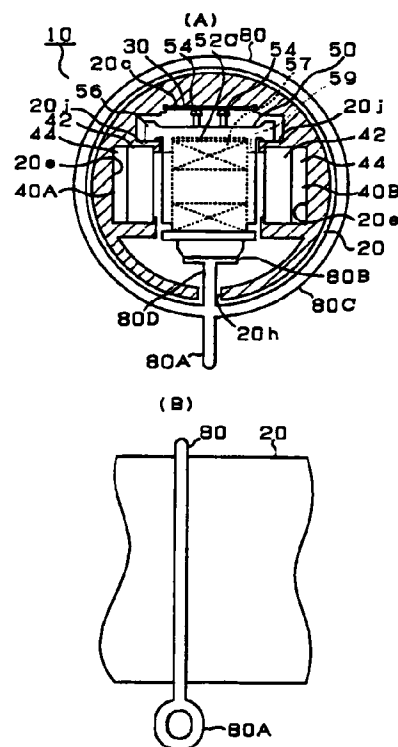
(72) Inventor: **Kato, Naoyuki**
Ichiriyama-Cho, Kariya-shi, Aichi-ken (JP)

(74) Representative:
VOSSIUS & PARTNER
Siebertstrasse 4
81675 München (DE)

(54) **Linear motor type curtain opening and closing device**

(57) To provide a linear motor type curtain opening and closing device capable of smoothly running ring runners, there is provided a linear motor type curtain opening and closing device constituted by an outer rail (20) incorporating stators, a movable element (50) running in the outer rail (20) and a plurality of ring runners (80, 82A, 82B....) fitted movably to the outer periphery of the outer rail (20) along the outer rail (20) and capable of hanging a curtain where a forefront one of the ring runner (80) is fixed to the movable element (50) by which in running the movable element (50), the ring runner (80) moving along with the movable element (50) is not inclined and is not twisted in respect of the outer rail (20).

Fig. 1



EP 0 807 393 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 10 7884

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	PATENT ABSTRACTS OF JAPAN vol. 18, no. 641 (E-1639), 6 December 1994 & JP 06 245479 A (SHINSEI KOGYO KK), 2 September 1994, * abstract *	1,2	A47H5/02 A47H15/02
Y	GB 1 498 927 A (H. W. FISHER) * page 1, line 51 - line 79; figure 1 *	1,2	
A	FR 2 379 231 A (J. A. P. GOGNON) * the whole document *	1,2	
A	FR 978 092 A (R. HERWEGH) * the whole document *	1,2	
A	DE 27 38 251 A (H. KILIAN) * the whole document *	1,2	
A	PATENT ABSTRACTS OF JAPAN vol. 14, no. 210 (E-0922), 27 April 1990 & JP 02 046157 A (FUJI ELECTRIC CO LTD), 15 February 1990, * abstract *	1,2	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 9 February 1998	Examiner Delzor, F
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/82 (P04C01)