Industria y Comercio

SUPERINTENDENCIA

Delegatura de propiedad Industrial

División de Nuevas Creaciones

PCT

SOLICITUD

PATENTE DE INVENCIÓN

21. **EXPEDIENTE No.** 06-16530

54. **TÍTULO** DISPOSITIVO PROTECTOR PARA PASAMANOS DE ESCALERA MOVIL

51. **CLASIFICACIÓN INTERNACIONAL** R60B 31/02, 29/00

71. **SOLICITANTE** I Y R INTERNATIONAL CO., LTD.

DOMICILIO SEUL, COREA

74. **APODERADO** LAURA MICHELSEN NIÑO

22. **BOGOTÁ, D. C.,** COLOMBIA

(FORMA P-10)

PETITORIO

Industria y Comercio
SUPERINTENDENCIA

SUPERINDUSTRIA Y COMERCIO
Radicacion : 05016530 00000000 Folios: 82
Fecha (AMD): 2006-02-20 15:34:14
Tramite : 811 PCT-PATENT 370 FASE NACI 411 PRESENTAC
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

FORMULARIO ÚNICO DE SOLICITUD DE PATENTE
PCT
ENTRADA EN FASE NACIONAL

① SOLICITUD DE :

[X] Patente de Invención. [ ] Patente de Modelo de Utilidad.

[X] Capítulo I. [ ] Capítulo II.

② SOLICITANTE (71)	Nombre: I & K INTERNATIONAL Co., LTD. Dirección: Nacionalidad o Domicilio: SEUL, COREA Lugar de Constitución: COREA Teléfono: Fax: E-mail:	**IDENTIFICACIÓN** C.C. [ ] NIT [ ] C.E. [ ] Otro [ ] Cual_____ Número _____
③ REPRESENTANTE O APODERADO	Nombre: LAURA MICHELSEN NIÑO Dirección: CALLE 93B No. 12-48, Of. 204 Teléfono: 601 9660 Fax: 611 4209 E-mail: tum@tumnet.com	**IDENTIFICACIÓN** C.C. [X] NIT [ ] C.E. [ ] Otro [ ] Cual_____ Número 39.783.287 TP 87.897
④ INVENTOR (ES) (72)	Nombre: VER ANEXO Dirección: VER ANEXO Nacionalidad o Domicilio COREA	

⑤ PCT (86)

Solicitud Internacional No. PCT/KR2003/002671 Fecha 05/12/2003

Publicación Internacional No. WO 2005/018955 A1 Fecha 03/03/2005

⑥ Título (54) DISPOSITIVO PROTECTOR PARA PASAMANOS DE ESCALERA MOVIL

⑦ Clasificación Internacional (51) B60B 31/02, 29/00

⑧ Prioridad SI [X] NO [ ]	(33) País de Origen	(32) Fecha	(31) Número de Solicitud
	COREA	20/08/2003	20-2003-0026803
	COREA	20/08/2003	20-2003-0026804

⑨ Comprobante de pago No.: 06-13-700 06-13-72 **Fecha** 17/02/2006
20-02-06

Instrucciones para el diligenciamiento del presente formulario, ver reverso de esta página.

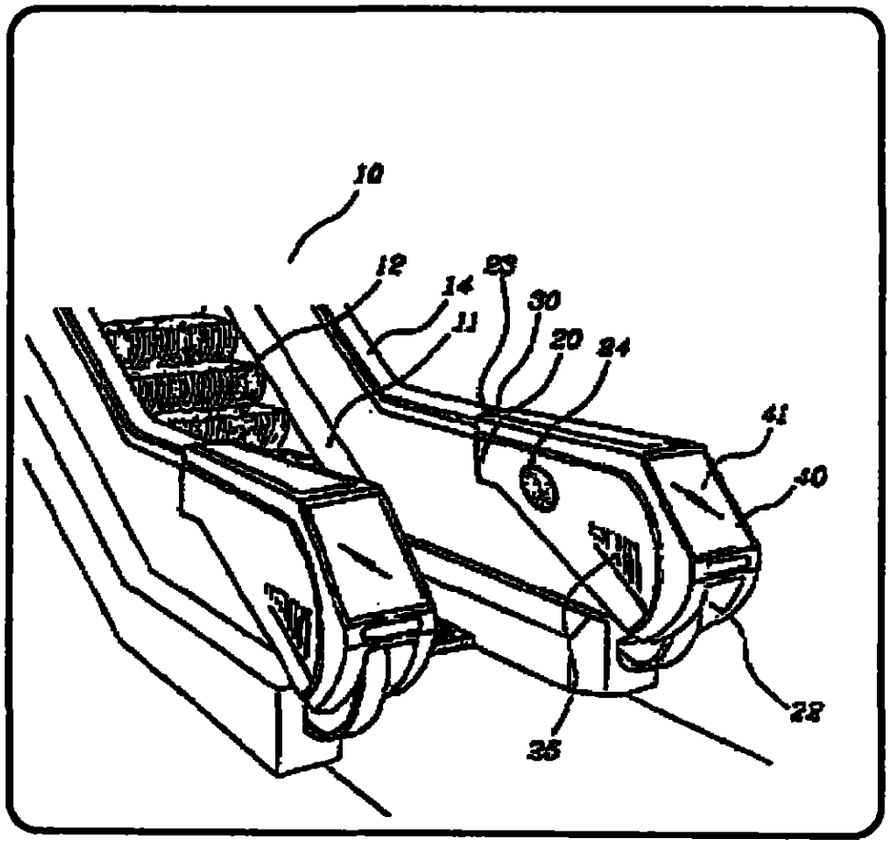
2020-F06 (03-04-04)

2 BZ

(10) ANEXOS

- [X] Comprobante de pago de la tasa de presentación de la solicitud.
- [ ] Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica.
- [ ] Poderes, si fuere el caso.
- [ ] Documento de cesión del inventor al solicitante o a su causante.
- [ ] Declaraciones
- [X] Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones,dibujos)
- [X] Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones,dibujos)
- [ ] Copia del examen preliminar internacional efectuado por la Autoridad Internacional de Examen Preliminar (IPEA).
- [ ] Traducción del examen preliminar internacional efectuado por la IPEA.
- [ ] De ser el caso, copia del contrato de acceso.
- [ ] De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.
- [ ] De ser el caso, certificado de depósito del material biológico
- [X] Arte final 12x12.
- [ ] De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
- [X] De ser el caso, modificaciones efectuadas a la solicitud internacional.
- [X] Otros

(11) FIGURA CARACTERÍSTICA:



(12) Solicito la concesión de la patente,

NOMBRE: LAURA MICHELSEN NIÑO

FIRMA:

C.C. 39.783.287 T.P. 67.897

Instrucciones para la presentación de los anexos, ver reverso de esta página.

X3

INVENTOR

KIM, Jong-Sook
Bundang-dong 120-4
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República de Corea

54

SUPERINDUSTRIA Y COMERCIO
Radicacion : 06016530 00000000 Folios: 02
Fecha (AMD): 2006-02-20 15:24:14
Tramite : 011 PCT-PATENT 378 FASE NACI 411 PRESENTAC
Dependencia: 0000 DIVISION DE NUEVAS CREACIONES

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 06 - 13,700
FECHA : FEBRERO 17 DE 2006

C O N S I G N A C I O N

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
TRIANA URIBE & NICHELSEN	CONSIGNACION	BANCO POPULAR	050-00110-6	48486972	17/02/2006	467,800.00

C O N C E P T O

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	1 TRAMITES DE SOL. DE PATENTE DE IN	463,000.00
		TOTAL : $	463.000.00

SON: CUATROCIENTOS SESENTA Y TRES MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No._____

5

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

SUPERINDUSTRIA Y COMERCIO
Radicacion : 06816530 00000000 Folios: 02
Fecha (AMD): 2006-02-20 15:34:14
Tramite : 011 PCT-PATENT 378 FASE NACI 411 PRESENTAC
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

RECIBO OFICIAL DE CAJA : 06 - 13,924
FECHA : FEBRERO 20 DE 2006

***** C O N S I G N A C I O N *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
TRIANA URIBE & NICHELSEN	CONSIGNACION	BANCO POPULAR	050-00110-6	51162561	20/02/2006	130,000.00

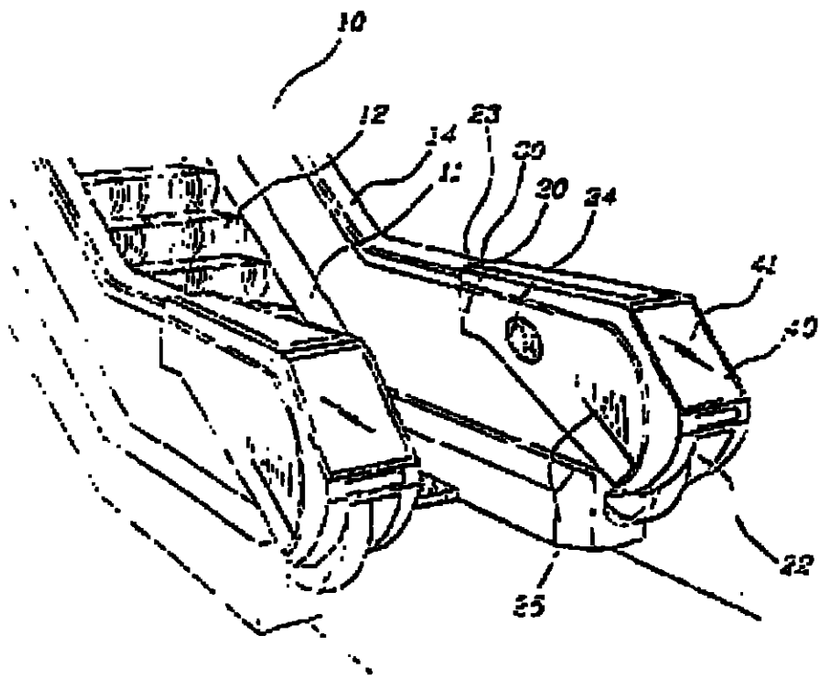
***** C O N C E P T O *****

CANT.	RENTISTICO	CONCEPTO		TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	82	INVOCACION DE UNA PRIORIDAD EN NU	130,000.00
			TOTAL : $	130,000.00

SON: CIENTO TREINTA MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No._____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PCT REQUEST

PCT/KR/32

Original (for SUBMISSION) - printed on 05.12.2003 04:27:48 PM

0	For receiving Office use only	
0-1	International Application No.	
0-2	International Filing Date	
0-3	Name of receiving Office and "PCT International Application"	
0-4	Form - PCT/ROM101 PCT Request	
0-4-1	Prepared using	PCT-EASY Version 2.92 (updated 01.01.2003)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	Korean Intellectual Property Office (RO/KR)
0-7	Applicant's or agent's file reference	PCT/KR/32
I	Title of Invention	GUARD DEVICE FOR ESCALATOR HANDRAIL
II	Applicant	
II-1	This person is:	applicant only
II-2	Applicant for	all designated States except US
II-4	Name (LAST, First)	IM, Chul-Soon
II-5	Address:	Bundang-dong 120-4 Bundang-gu, Seongnam-si. 463-832 Gyeonggi-do Republic of Korea
II-6	State of nationality	KR
II-7	State of residence	KR
II-8	Telephone No.	82-2-558-4838
II-9	Facsimile No.	82-2-557-7134
II-10	e-mail	mani@ssgpat.com
III-1	Applicant and/or inventor	
III-1-1	This person is:	applicant and inventor
III-1-2	Applicant for	US only
III-1-4	Name (LAST, First)	KIM, Jong-Sook
III-1-5	Address:	Bundang-dong 120-4 Bundang-gu, Seongnam-si 463-832 Gyeonggi-do Republic of Korea
III-1-6	State of nationality	KR
III-1-7	State of residence	KR

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PCT REQUEST PCT/KR/32

Original (for SUBMISSION) - printed on 06.12.2003 04:27:48 PM

IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	agent
IV-1-1	Name (LAST, First)	KIM, Jong-Yoon
IV-1-2	Address:	2nd Floor, Sangwon Building 636-15, Yeoksam-1dong Gangnam-gu 135-908 Seoul Republic of Korea
IV-1-3	Telephone No.	82-2-558-4838
IV-1-4	Facsimile No.	82-2-557-7134
IV-1-5	e-mail	mani@ssgpat.com
V	Designation of States	
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZM EW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE BG CH&LI CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT
V-2	National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH&LI CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

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PCT REQUEST PCT/KR/32

Original (for SUBMISSION) - printed on 05.12.2003 04:27:48 PM

V-5	Precautionary Designation Statement In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.		
V-6	Exclusion(s) from precautionary designations	NONE	
VI-1	Priority claim of earlier national application		
VI-1-1	Filing date	20 August 2003 (20.08.2003)	
VI-1-2	Number	20-2003-0026803	
VI-1-3	Country	KR	
VI-2	Priority claim of earlier national application		
VI-2-1	Filing date	20 August 2003 (20.08.2003)	
VI-2-2	Number	20-2003-0026804	
VI-2-3	Country	KR	
VII-1	International Searching Authority Chosen	Australian Patent Office (ISA/AU)	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	-	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	-	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	-	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	-	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	-	
IX	Check list	number of sheets	electronic file(s) attached
IX-1	Request (including declaration sheets)	4	-
IX-2	Description	9	-
IX-3	Claims	2	-
IX-4	Abstract	1	KEABST00.TXT
IX-5	Drawings	6	-
IX-7	TOTAL	22	

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PCT REQUEST

PCT/KR/32

Original (for SUBMISSION) - printed on 06.12.2003 04:27:48 PM

	Accompanying Items	paper document(s) attached	electronic file(s) attached
IX-8	Fee calculation sheet	✓	-
IX-9	Original separate power of attorney	✓	-
IX-17	PCT-EASY diskette	-	Diskette
IX-18	Figure of the drawings which should accompany the abstract	3	
IX-20	Language of filing of the international application	English	
X-1	Signature of applicant, agent or common representative		
X-1-1	Name (LAST, First)	KIM, Jong-Yoon	

FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/AU
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	

PCT (ANNEX - FEE CALCULATION SHEET) PCT/KR/32

Original (for SUBMISSION) - printed on 05.12.2003 04:27:46 PM

(This sheet is not part of and does not count as a sheet of the international application)

0	For receiving Office use only			
0-1	International Application No.			
0-2	Date stamp of the receiving Office			
0-4	Form - PCT/RO/101 (Annex) PCT Fee Calculation Sheet			
0-4-1	Prepared using	PCT-EASY Version 2.92 (updated 01.01.2003)		
0-9	Applicant's or agent's file reference	PCT/KR/32		
2	Applicant	IM, Chul-Soon, et al.		
12	Calculation of prescribed fees	fee amount/multiplier	Total amounts (KRW)	
12-1	Transmittal fee T	⇨	45,000	
12-2-1	Search fee S	⇨	710,000	
12-2-2	International search to be carried out by	AU		
12-3	International fee Basic fee (first 30 sheets) b1	530,000		
12-4	Remaining sheets	0		
12-5	Additional amount (X)	12,000		
12-6	Total additional amount b2	0		
12-7	b1 + b2 = B	530,000		
12-8	Designation fees Number of designations contained in international application	94		
12-9	Number of designation fees payable (maximum 8)	5		
12-10	Amount of designation fee (X)	114,000		
12-11	Total designation fees D	570,000		
12-12	PCT-EASY fee reduction R	-163,000		
12-13	Total international fee (B+D-R) I	⇨	937,000	
12-17	TOTAL FEES PAYABLE (T+S+I+P)	⇨	1,692,000	
12-18	Mode of payment	cash		

VALIDATION LOG AND REMARKS

13-2-2	Validation messages States	Green? More designations could be made. The following States have not been designated: KR. Please verify.
13-2-7	Validation messages Contents	Green? Priority 1. The priority document is not enclosed. (The applicant must furnish it within 16 months from the earliest priority date claimed)

6/12

PCT (ANNEX - FEE CALCULATION SHEET) PCT/KR/32

Original (for SUBMISSION) - printed on 05.12.2005 04:27:48 PM

		Green? Priority 2. The priority document is not enclosed. (The applicant must furnish it within 16 months from the earliest priority date claimed)
13-2-8	Validation messages Fees	Green? Please confirm that fee schedule utilized is the latest available
13-2-11	Validation messages For receiving Office/International Bureau use only	Green? Verify electronic data for consistency against printed form.

13

PCT POWER OF ATTORNEY

PCT/KR/32

Printed on 05.12.2003 03:29:59 PM

0-1	PCT Power of Attorney (for an international application filed under the Patent Cooperation Treaty) (PCT Rule 90.4)	
0-1-1	Prepared using	PCT-EASY Version 2.92 (updated 01.01.2003)

1	The undersigned applicant(s)	IM, Chul-Soon; KIM, Jong-Sook
1-1-1	hereby appoints (appoint) the following person	KIM, Jong-Yoon 2nd Floor, Sangwon Building 636-15, Yeoksam-1dong Gangnam-gu, 135-908 Seoul Republic of Korea
1-2	as	agent
1-3	to represent the undersigned before	all the competent International Authorities
1-4	in connection with the international application identified below:	
1-4-1	Title of the invention	GUARD DEVICE FOR ESCALATOR HANDRAIL
1-4-2	Applicant's or agent's file reference	PCT/KR/32
1-4-3	International application number (if already available)	
1-4-4	filed with the following Office as receiving Office	Australian Patent Office (RO/AU)
1-5	and to make or receive payments on behalf of the undersigned.	

2-1	Signature of applicant	
2-1-1	Name	IM, Chul-Soon
2-2	Signature of applicant	
2-2-1	Name	KIM, Jong-Sook
3	Date	05 December 2003 (05.12.2003)

GUARD DEVICE FOR ESCALATOR HANDRAIL

Technical Field

The present invention relates to a guard device for a handrail in an entry zone of an escalator, which is intended to assure safety of an entry of the escalator, sanitary maintenance of the handrail by sterilization, efficient advertisement of products and corporations, and clean maintenance of air in the entry of the escalator.

Background Art

Generally, escalators are installed on plural stories of buildings in such a way that the escalator are connected to each other in the zigzag fashion, unlike elevators which travels between a riding story and a desired story. Accordingly, the escalators are predominantly used in department stores in which various products are sold, subways, airports, terminals and the like, to which people flock, rather than business buildings. Recently, moving walkways, which are horizontal traveling type of escalators, are used even in the same story, in order to reduce traffic.

Such an escalator is usually designed to travel only in one direction. As shown in FIG. 1, the escalator 10 includes a pair of skirt bases 11, which are spaced from each other with a spacing of about 80cm - 120cm therebetween, and a step belt consisting of a plurality of steps 12, which travel continuously while maintaining the upper surfaces in the horizontal position and on which passengers mount.

Each of the pair of skirt bases 11 is provided thereon with a lateral balustrade 13 made of glass or metal. The lateral balustrade 13 is provided thereon with a handrail 14, which travels in the same direction and at the same speed as those of the step belt 12, and serves as a handgrip for passengers.

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The handrails 14, which serve as handgrip, are intended to prevent passengers from falling down or slipping. To prevent slippage by the passengers, the handrails 14 are commonly made of a rubber material.

Since the handrails 14 come into contact with hands of a multitude of people, if sanitary maintenance of the handrails 14 is not assured, various viruses, bacteria and the like harmful to humans are apt to propagate on the handrails 14. Therefore, the handrails 14 must be always maintained in the clean condition. Up to now, sanitary maintenance of the handrails 14 has been fulfilled by frequently mopping and cleaning surfaces of the handrails 14 with neutral detergent or antiseptic solution.

However, since the conventional handrails of escalators must be frequently cleaned manually, there is a problem in that the maintenance of the handrail requires very high costs. In addition, since the cleaning work cannot positively sterilize and disinfect the handrails by a simple wiping operation, the passengers are exposed to hazard such as disease and bacterial infection due to viruses and bacteria existing on the handrails.

Since escalators are used to transport a multitude of people, it is possible to maximize the advertising effectiveness for products and corporations by providing advertising copies to the escalators. However, heretofore, there are only triangular guide plates positioned at intersections of crossed escalators to prevent passengers' heads from being caught in the intersections, and small advertising boards erected at transferring area between successive escalators, as the advertising copies.

By way of an example, Korean Utility Model Registration No. 20-0298362 discloses an advertising object "P" consisting of a printed layer attached on handrails 14 of an escalator, and a film cover attached to the printed layer, as shown in FIG. 2. However, since the advertising object "P" is attached to the handrails 14 rotating around balustrades of the escalator, the advertising object "P" comes into contact with a multitude of passengers' hands, leading to maculae and contaminant on the advertising object and color fading of the advertising

object. For this reason, it is difficult to attract people's attention for the advertising object.

When getting on the escalator 10, a passenger first grips handrails 14 in the entry zone of the escalator and then treads on a step 12. At this point, because the elderly aged or weaker man or children have slow reflexes, his/her arms are pulled forward by the handrails 14 before treading on the steps 12, thereby causing the passenger to be fall down or to be injured.

In addition of the above problems, since the escalators are used by a multitude of people, dust and various bacteria exist in the entry zone of the escalator, reading to unsanitary equipment. However, although the fact that the entry zone of the escalator is unsanitary has been recognized, a specific solution to overcome the problem cannot be achieved.

Disclosure of the Invention

Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is to provide a guard device for an escalator handrail, which receives a part of the handrail in the entry zone of the escalator, to prevent safety hazards which may occur in the entry zone.

Another object of the present invention is to provide a guard device for an escalator handrail, which includes a sterilization unit therein to sterilize the handrail, thereby preventing passengers from being infected by bacteria, viruses and germs existing on the handrail.

A further object of the present invention is to provide a guard device for an escalator handrail, which includes an advertising display provided on an outer surface thereof to provide efficient advertising effects to passengers.

Still another object of the present invention is to provide a guard device for an escalator handrail, which includes an air-cleaning unit provided at a side wall thereof to maintain air in the entry zone in the clean condition.

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In order to accomplish the above object, the present invention provides a guard device which is removably mounted on a handrail positioned in an entry zone of an escalator. The guard device includes a guide channel formed at its bottom to receive the portion of the handrail positioned in the entry zone, a sterilization unit to sterilize the handrail, and an advertising display provided on an outer surface thereof to provide efficient advertising effects to passengers.

Brief Description of the Drawings

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of a conventional escalator;

FIG. 2 is a perspective view of a conventional escalator, which is provided at its handrail with advertising slogans;

FIG. 3 is a perspective view of guard devices according to an embodiment of the present invention, which are mounted on handrails of an escalator, positioned in an entry zone;

FIG. 4 is an enlarged perspective view of the guard device according to the present invention, in which a transparent sheet is removed therefrom;

FIG. 5a is a cross-sectional view of an example of a sterilization unit provided in the guard device according to the present invention, which includes ultraviolet lamps;

FIG. 5b is a cross-sectional view of another example of a sterilization unit provided in the guard device according to the present invention, which includes a sprayer;

FIG. 5c is a cross-sectional view of a further example of a sterilization unit provided in the guard device according to the present invention, which includes an applicator; and

FIG. 6 is a side view of an air-cleaning unit provided in the guard device

according to the present invention.

Best Mode for Carrying Out the Invention

Reference should now be made to the drawings, in which the same reference numerals are used throughout the different drawings to designate the same or similar components.

Fig. 3 is a perspective view showing guard devices for an escalator, according to an embodiment of the present invention, which are mounted on handrails in an entry zone of the escalator, and FIG. 4 is a perspective view showing only one of the guard devices in detail. As shown in FIGS. 3 and 4, the guard device 20 according to the present invention includes a guide channel 21 with a predetermined depth, which is provided along the center line of an bottom surface of the guard device 20 and in which a handrail 14 is received. The guide channel 21 is formed to avoid interference with the guard device 20 during an operation of the handrail, thus assuring safe and smooth operation of the handrail.

As such, since the guard device 20 is installed on the handrail 14, a portion of the handrail 14 in the entry zone of the escalator, is not exposed to an external environment and thus protected against the environment, thereby overcoming the above-mentioned prior art problem. More specifically, a safety hazard, in which passenger's arms gripping the handrails 14 are pulled forward before treading on the step 12, thereby causing the passenger to fall down or to be injured, is efficiently prevented.

The guard device 20, which is constructed to prevent the safety hazard which may occur in the entry zone of the escalator, has a predetermined length corresponding to a distance between a front end of the handrail 14 and a front edge of the foremost step 12 of the escalator. Therefore, the guard device 20 can prevent a passenger from gripping the handrail 14 in advance of treading on the step 12, thus avoiding safety hazards caused by pulling passenger's arms forward.

As shown in FIG. 5a, the guard device 20 is provided therein with a

sterilization unit 30 to sterilize the handrail 14. The sterilization unit 30 is preferably installed at an entrance side 22 or an exit side 23 in the guide channel 21, and is spaced from the handrail 14 by a certain distance while facing the handrail 14.

Although the sterilization unit 30 is preferably embodied by ultraviolet lamps 31, as shown in FIG. 5a, the sterilization unit 30 may be embodied by a sprayer 32 to spray bactericidal liquid on the handrail 14, as shown in FIG. 5b, or an applicator 33 to apply bactericidal liquid to the handrail 14, as shown in FIG. 5c, if necessary.

The ultraviolet lamps 31 are effective in eliminating most bacteria, viruses and funguses but do not change properties of irradiated objects. Furthermore, since the sterilization unit 30 using the ultraviolet lamps 31 can be operated by a simple manipulation of turning on the ultraviolet lamps 31, its usage is relatively easy, and costs of installation and maintenance are reduced.

In the sterilization unit 30 using the ultraviolet lamps 31, the sterilization unit 30 is preferably provided with a reflecting plate 31a to irradiate ultraviolet light to side surfaces as well as an upper surface of the handrail 14. The reflecting plate 31a is preferably made of a stainless plate or a metal plate which is effective in reflecting lights.

As shown in FIG. 5b, the sprayer 32 includes nozzles 32a through which bactericidal liquid is applied to the handrail 14. At this point, the bactericidal liquid is atomized through the nozzles 32a, and the atomized bactericidal liquid is applied to the handrail 14. Therefore, even though a passenger grips the handrail 14 immediately after application of the bactericidal liquid, the passenger's hands are not stained with an excessive amount of the bactericidal liquid.

As shown in FIG. 5c, the applicator 33 includes a roller 33a which is in contact with the handrail 14 to apply bactericidal liquid to the handrail 14. The roller 33a is supplied with the bactericidal liquid. As the handrail 14 is operated, the roller 33a containing the bactericidal liquid is correspondingly rotated by

2X20

direct contact with the handrail 14.

The guard device 20 according to the present invention further includes an advertising display 40, which is provided at a front face of the guard device 20 to face upward and forward. The advertising display 40 may be embodied by any one selected from a group consisting of an LED, an LCD, an organic EL sheet and a hologram. Where the advertising display 40 is embodied by the LED, the advertising display 40 includes a plurality of pixels, each being comprised of an LED, and the advertising display 40 is programmed such that the LEDs are selectively blinked to display a desired character or logo.

Meanwhile, where the advertising display 40 is constructed by the LCD or the organic EL sheet, the advertising display 40 can display a moving picture as well as the character and the logo by selectively irradiating a backlight to a plurality of cells constituting a screen of the advertising display 40.

The advertising display 40 according to the present invention enables the advertising contents to be easily substituted with new different contents by changing the program input to the advertising display 40. Alternatively, the advertising display 40 may be provided with the hologram displaying a stereoscopic image or an advertising sticker. The advertising display 40 is covered with a transparent cover 41 to protect the screen of the advertising display 40 against the environment. The transparent cove 41 is made of plastic, synthetic resin, glass or acrylic resin, and removably attached to the screen of the advertising display 40. Accordingly, the advertising display 40 enables the advertising contents to be quickly and easily substituted with new contents according to changes of the advertising provider or production of new brands.

As shown in FIG. 6, the advertising device 20 according to the present invention is further provided at its side wall with an air cleaning unit 50, which functions to draw air in the entry zone of the escalator, remove bacteria and dust from the air, and discharge the cleaned air outside the guard device 50. The air cleaning unit 50 is comprised of a pump 51 to draw outside air and discharge the air outside the guard device 50, an ultraviolet lamp 52 to sterilize the drawn air,

and a filter 53 to remove dust from the drawn air.

More specifically, the air cleaning unit 50 fulfills the air-cleaning process in such a way that outside air is drawn into the air cleaning unit 50 through a plurality of through-holes 24 formed at the side wall of the guard device 20 by the pump 51, the drawn air is sterilized by ultraviolet lights emitted from the ultraviolet lamp 52, dust contained in the sterilized air is removed through the filter 53, and the sterilized and filtered air is discharged outside the guard device 20 through a plurality of through-holes 25 formed at the other side wall of the guard device 20. Consequently, the air in the entry zone of the guard device 20 is maintained in a clean condition, thereby having little bad effect on passengers.

Electricity required to drive the sterilization unit 30, the sprayer 32, the applicator 33, the advertising display 40 and the air-cleaning unit 50 may be diverged from the main electric power supplied to the escalator. The above components may be controlled by a control unit (not shown) additionally provided in the guard device 20 or mounted on an outer surface of the guard device 20. The control unit is preferably operated to control the sterilization unit 30, the sprayer 32, the applicator 33, the advertising display 40 and the air-cleaning unit 50 while the escalator is driven.

Industrial Applicability

As described above, the present invention provides a guard device, which is mounted on a handrail positioned in an entry zone of an escalator to prevent safety hazards which may occur in the entry zone.

Since the guard device according to the present invention includes a sterilization unit therein to sterilize the handrail, it is possible to prevent passengers from being infected by bacteria, viruses or germs existing on the handrail.

Furthermore, since the guard device according to the present invention includes an advertising display on an outer surface thereof, it is possible to

achieve efficient advertising and informing effects for corporations and products.

In addition, since the guard device according to the present invention includes an air-cleaning unit at a side wall thereof, which is intended to draw outside air in an entry zone of an escalator, eliminate undesired substances such as bacteria, viruses and dust from the drawn air and discharge the cleaned air outside the guard device, it is possible to maintain air in the entry zone of the escalator in the sanitary condition.

Although the preferred embodiment of the present invention has been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. A guard device which is removably mounted on an escalator handrail, the guard device comprising:

a guide channel formed at its bottom to receive a part of the handrail positioned in the entry zone of the escalator.

2. The guard device as set forth in claim 1, further comprising a sterilization unit provided therein, to sterilize the handrail received in the guide channel.

3. The guard device as set forth in claim 2, wherein the sterilization unit includes at least one ultraviolet lamp to irradiate ultraviolet lights to the handrail.

4. The guard device as set forth in claim 3, wherein the sterilization unit includes an applying means to apply bactericidal liquid to the handrail.

5. The guard device as set forth in claim 1, further comprising an advertising display provided on a front face thereof to face forward.

6. The guard device as set forth in claim 1, wherein the advertising display includes any one selected from a group consisting of an LED, an LCD, an organic EL sheet and a hologram.

7. The guard device as set forth in claim 6, wherein the advertising display is covered with a transparent sheet to protect the display surface of the advertising display against an environment.

8. The guard device as set forth in claim 2 or 5, further comprising an air-cleaning unit provided at a side wall thereof to draw air in the entry zone of

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the escalator, eliminate bacteria and dust from the air, and discharge the cleaned air outside the guard device.

9. The guard device as set forth in claim 2 or 5, wherein the guard device has a length corresponding to a distance between a front end of the handrail and a front edge of the foremost step of the escalator.

Abstract

A guard device for a handrail in an entry zone of an escalator is disclosed, which assures safety of an entry of the escalator, sanitary maintenance of the handrail by sterilization, efficient advertisement of products and business corporations, and clean maintenance of air in the entry of the escalator. The guard device includes a guide channel at its bottom to receive a part of the handrail. The guard device further includes a sterilization unit to sterilize the handrail, an advertising display provided on a front face thereof, and an air-cleaning unit provided at a side wall thereof.

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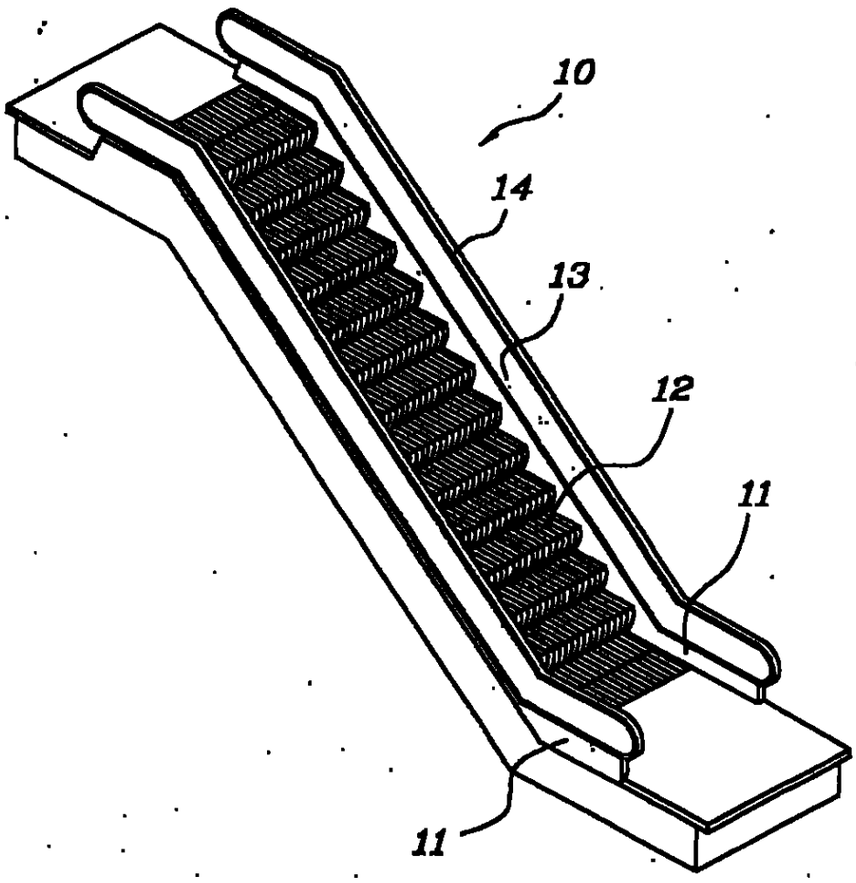
Fig 1.



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13

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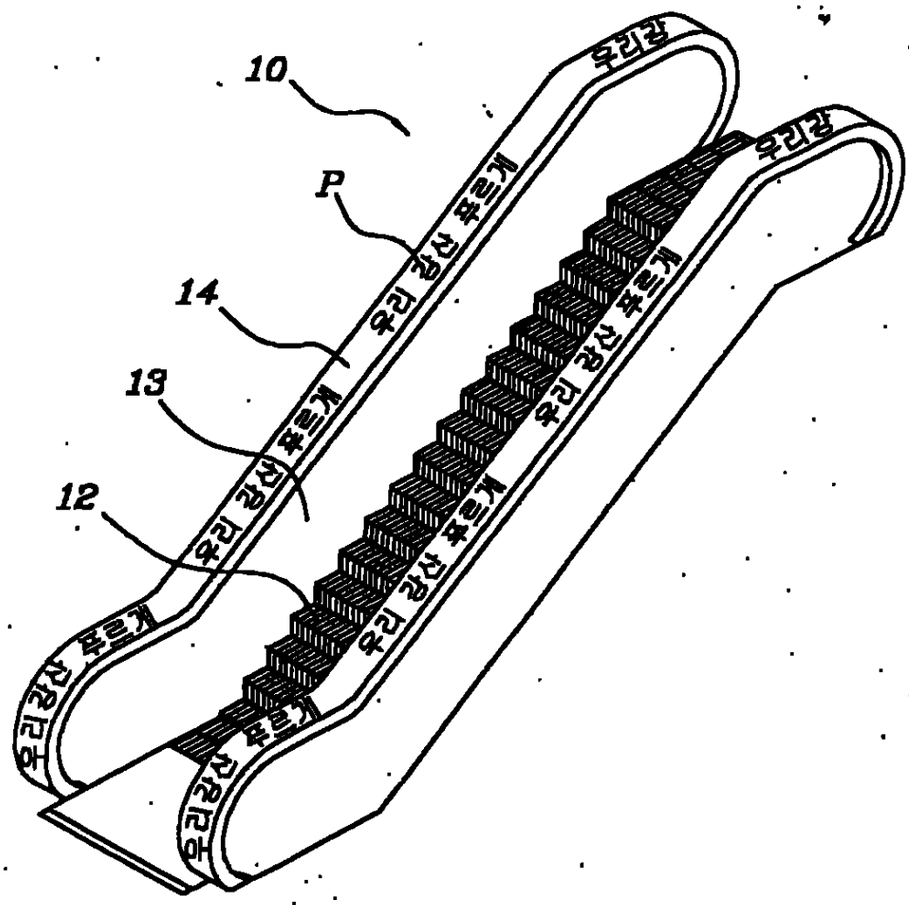
Fig 2.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우리강산 푸르게

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Fig 3.

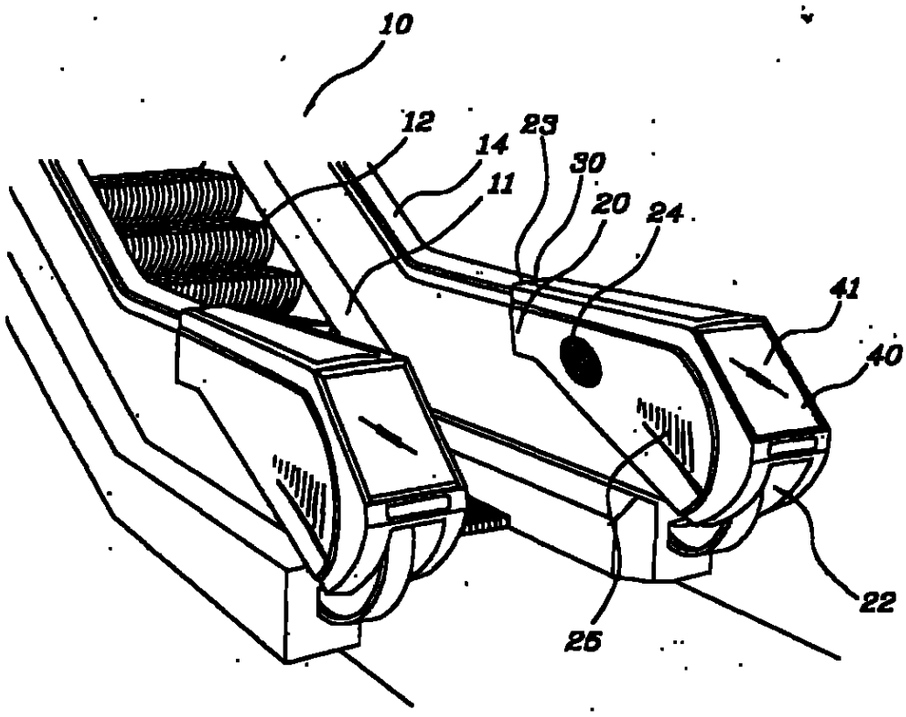

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Fig 4.

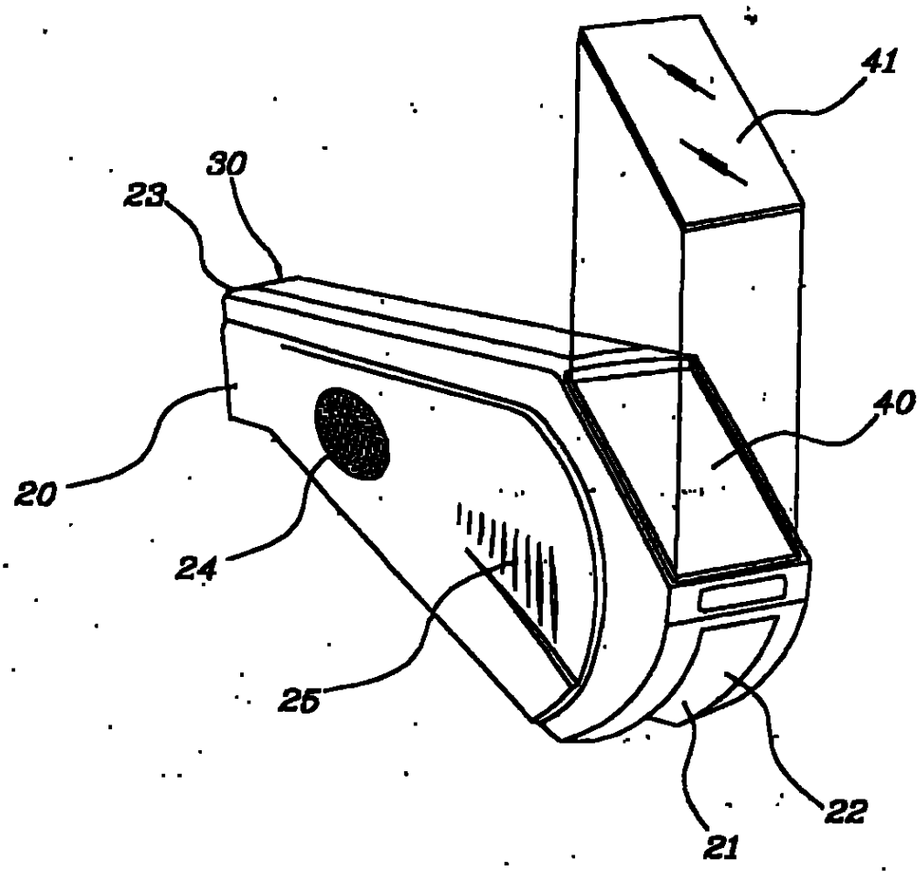

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Fig 5a.

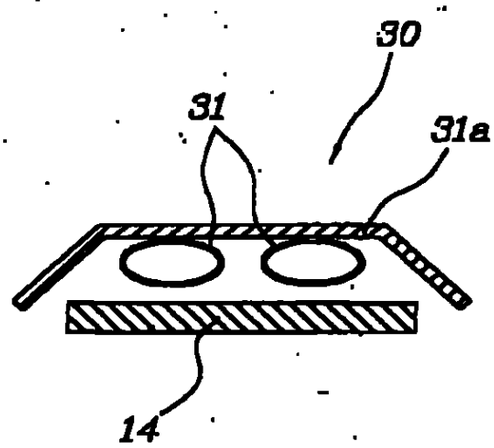

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Fig 5b.

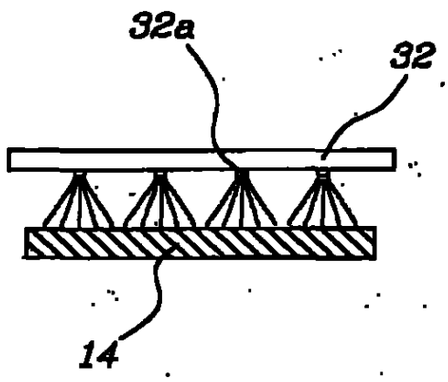

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Fig 5c.

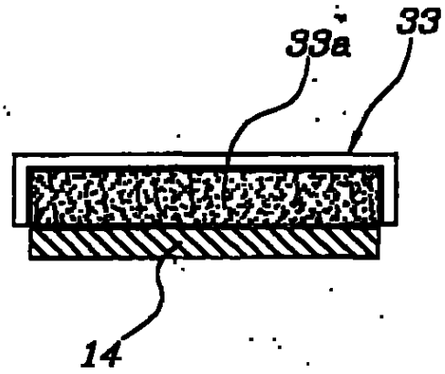
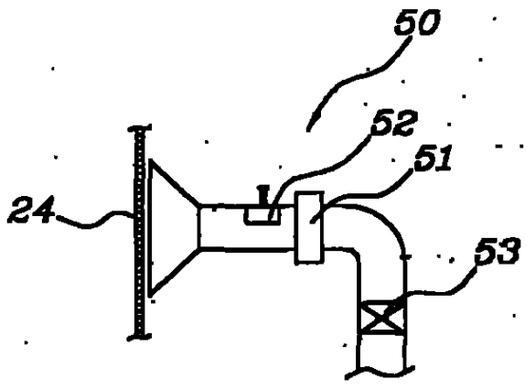


Fig 6.



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PCT POWER OF ATTORNEY

PCT/KR/32

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0-1	PCT Power of Attorney (for an international application filed under the Patent Cooperation Treaty) (PCT Rule 90.4)	
0-1-1	Prepared using	PCT-EASY Version 2.92 (updated 01.01.2003)

1	The undersigned applicant(s)	IM, Chul-Soon; KIM, Jong-Sook
1-1-1	hereby appoints (appoint) the following person	KIM, Jong-Yoon 2nd Floor, Sangwon Building 636-15, Yeoksam-1dong Gangnam-gu, 135-908 Seoul Republic of Korea
1-2	as	agent
1-3	to represent the undersigned before	all the competent International Authorities
1-4	in connection with the international application identified below:	
1-4-1	Title of the invention	GUARD DEVICE FOR ESCALATOR HANDRAIL
1-4-2	Applicant's or agent's file reference	PCT/KR/32
1-4-3	International application number (if already available)	
1-4-4	filed with the following Office as receiving Office	Australian Patent Office (RO/AU)
1-5	and to make or receive payments on behalf of the undersigned.	

2-1	Signature of applicant	
2-1-1	Name	IM, Chul-Soon 임철순
2-2	Signature of applicant	
2-2-1	Name	KIM, Jong-Sook 김종숙
3	Date	05 December 2003 (05.12.2003)

DISPOSITIVO PROTECTOR PARA PASAMANOS DE ESCALERA MÓVIL

CAMPO TÉCNICO

La presente invención se refiere a un dispositivo protector para un pasamanos en una zona de entrada de una escalera móvil, el cual se pretende que asegure la seguridad de una entrada de la escalera móvil, mantenimiento sanitario del pasamanos mediante esterilización, publicidad eficaz de productos y corporaciones, y mantenimiento limpio de aire en la entrada de la escalera móvil.

ANTECEDENTES DE LA TÉCNICA

Generalmente, las escaleras móviles se instalan en plantas plurales de edificios de tal manera que las escaleras móviles se conectan entre sí en forma zigzag, diferente a los elevadores que viajan entre una planta en movimiento y una planta deseada. De acuerdo con lo anterior, las escaleras móviles se utilizan predominantemente en tiendas departamentales en las cuales se venden diversos productos, metros, aeropuertos, terminales y lo similar, a los cuales esquilan las personas, en lugar de los edificios de negocios. Recientemente, las pasarelas en movimiento, que son un tipo de escaleras móviles de viaje horizontal, se utilizan aún en la misma planta, a fin de reducir el tráfico.

Tal escalera móvil se diseña usualmente para viajar solamente en una dirección. Según se muestra en la FIG. 1, la

escalera móvil 10 incluye un par de bases de cenefa 11, que se separan entre sí con una separación de aproximadamente 80 cm – 120 cm entre las mismas, y una cinta de escalón que consisten de una pluralidad de escalones 12, que viajan continuamente mientras que mantienen las superficies superiores en la posición horizontal y en las cuales se montan los pasajeros.

Cada una del par de bases de cenefa 11 se proporciona sobre la misma con balaustrada lateral 13 elaborada de vidrio o metal. La balaustrada lateral 13 se proporciona sobre la misma con un pasamanos 14, el cual viaja en la misma dirección y a la misma velocidad como aquellos de la cinta de escalón 12, y sirve como una asidero para los pasajeros.

Los pasamanos 14, que sirven como asidero, se pretende que prevengan a los pasajeros de caerse o resbalarse. Para prevenir el resbalamiento por los pasajeros, los pasamanos 14 comúnmente se elaboran de un material de caucho.

Ya que los pasamanos 14 entran en contacto con las manos de una multitud de personas, si el mantenimiento sanitario de los pasamanos 14 no se asegura, varios virus, bacterias y lo similar, nocivos para humanos son aptos de propagarse en los pasamanos 14. Por lo tanto, los pasamanos 14 deben siempre mantenerse en la condición limpia. Hasta ahora, el mantenimiento sanitario de los pasamanos 14 se ha completado al fregar y limpiar frecuentemente las superficies de los pasamanos 14 con detergente neutral o solución antiséptica.

Sin embargo, ya que los pasamanos convencionales de las escaleras móviles deben limpiarse frecuentemente de manera manual, existe un problema en que el mantenimiento del pasamanos requiere costos muy altos. Además, ya que el trabajo de limpieza no puede esterilizar y desinfectar completamente los pasamanos por una simple operación limpiadora, los pasajeros se exponen al peligro tal como una enfermedad e infección bacteriana debido a virus y bacterias que existen en los pasamanos.

Ya que las escaleras móviles se utilizan para transportar una multitud de personas, es deseable maximizar la efectividad publicitaria para productos y corporaciones al proporcionar copias publicitarias a las escaleras móviles. Sin embargo, hasta este momento, existen placas guía triangulares colocadas en intersecciones de escaleras móviles cruzadas para prevenir que las cabezas de los pasajeros se atrapen en las intersecciones, y pequeños tableros publicitarios se levantan en el área de transferencia entre las escaleras móviles sucesivas, como las copias publicitarias.

A manera de ejemplo, el Modelo de Utilidad Coreano No. de Registro 20-0298362 describe un objeto publicitario "P" que consiste de una capa impresa adherida en los pasamanos 14 de una escalara móvil, y una cubierta de película adherida a la capa impresa, según se muestra en la FIG. 2. Sin embargo, ya que el objeto publicitario "P" se adhiere a los pasamanos 14 girando alrededor de las balaustradas de la escalera móvil, el objeto publicitario "P" entra

en contacto con una multitud de manos del pasajero, conduciendo a máculas y contaminantes en el objeto publicitario y atenuación del color del objeto publicitario. Por esta razón, es difícil atraer la atención de las personas para el objeto publicitario.

Cuando uno llega a la escalera móvil 10, un pasajero primero agarra los pasamanos 14 en la zona de entrada de la escalera móvil y después pisa un escalón 12. En este punto, debido a que el hombre más débil o de edad avanzada o niños tienen reflejos lentos, sus brazos se halan hacia delante por los pasamanos 14 antes de pisar los escalones 12, originando de tal modo que el pasajero se caiga o se lesione.

Además de los problemas anteriores, ya que las escaleras móviles se utilizan por una multitud de personas, existen varias bacterias y polvo en la zona de entrada de la escalera móvil, leyéndose para equipo no sanitario. Sin embargo, a pesar del hecho de que se ha reconocido que la zona de entrada de la escalera móvil no es sanitaria, no puede lograrse una solución específica para superar el problema.

DESCRIPCIÓN DE LA INVENCIÓN

De acuerdo con lo anterior, se ha elaborado la presente invención manteniendo en mente los problemas anteriores que se presentan en la técnica anterior, y un objeto de la presente invención es proporcionar un dispositivo protector para un pasamanos de escalera móvil, el cual recibe una parte del pasamanos en la zona de

entrada de la escalera móvil, para prevenir los peligros de seguridad que pudieran presentarse en la zona de entrada.

Otro objeto de la presente invención es proporcionar un dispositivo protector para un pasamanos de escalera móvil, el cual incluye una unidad de esterilización en la misma para esterilizar el pasamanos, previniendo de tal modo a los pasajeros de ser infectados por bacterias, virus y gérmenes existentes en el pasamanos.

Un objeto adicional de la presente invención es proporcionar un dispositivo protector para un pasamanos de escalera móvil, el cual incluye un dispositivo visualizador publicitario proporcionado sobre una superficie externa de la misma para proporcionar efectos publicitarios eficaces a los pasajeros.

Todavía otro objeto de la presente invención es proporcionar un dispositivo protector para un pasamanos de escalera móvil, el cual incluye una unidad de depuración de aire proporcionada en una pared lateral de la misma para mantener el aire en la zona de entrada en la condición limpia.

A fin de lograr el objeto anterior, la presente invención proporciona un dispositivo protector que se monta de manera removible en un pasamanos colocado en una zona de entrada de una escalera móvil. El dispositivo protector incluye un canal guía formado en su parte inferior para recibir la parte del pasamanos colocada en la zona de entrada, una unidad de esterilización para esterilizar el pasamanos, y un dispositivo visualizador publicitario proporcionado sobre una superficie externa para proporcionar efectos publicitarios

eficaces a los pasajeros.

BREVE DESCRIPCIÓN DE LOS DIBUJOS

Los anteriores y otros objetos, características y otras ventajas de la presente invención se entenderán más claramente de la siguiente descripción detallada tomada junto con los dibujos acompañantes, en los cuales:

FIG. 1 es una vista en perspectiva de una escalera móvil convencional;

FIG. 2 es una vista en perspectiva de una escalera móvil convencional, la cual se proporciona en su pasamanos con lemas publicitarios;

FIG. 3 es una vista en perspectiva de dispositivos protectores de acuerdo a una modalidad de la presente invención, los cuales se montan en pasamanos de una escalera móvil, colocados en una zona de entrada;

FIG. 4 es una vista en perspectiva alargada del dispositivo protector de acuerdo a la presente invención, en el cual una hoja transparente se remueve del mismo.

FIG. 5a es una vista transversal de un ejemplo de una unidad de esterilización proporcionada en el dispositivo protector de acuerdo a la presente invención, la cual incluye lámparas ultravioleta;

FIG. 5b es una vista transversal de otro ejemplo de una unidad de esterilización proporcionada en el dispositivo protector de acuerdo a la presente invención, la cual incluye un rociador;

FIG. 5c es una vista transversal de un ejemplo adicional de una unidad de esterilización proporcionada en el dispositivo protector de acuerdo a la presente invención, la cual incluye un aplicador; y

FIG. 6 es una vista lateral de una unidad de depuración de aire proporcionada en el dispositivo protector de acuerdo a la presente invención.

MEJOR MODO PARA LLEVAR A CABO LA INVENCIÓN

Ahora deberá hacerse referencia a los dibujos, en los cuales los mismos números de referencia se utilizan a lo largo de los diferentes dibujos para designar los mismos o similares componentes.

La Fig. 3 es una vista en perspectiva que muestra dispositivos protectores para una escalera móvil, de acuerdo a una modalidad de la presente invención, los cuales se montan en pasamanos en una zona de entrada de la escalera móvil, y la FIG. 4 es una vista en perspectiva que muestra solamente uno de los dispositivos protectores a detalle. Según se muestra en las FIGS. 3 y 4, el dispositivo protector 20 de acuerdo a la presente invención incluye un canal guía 21 con una profundidad predeterminada, el cual se proporciona a lo largo de la línea central de una superficie inferior del dispositivo protector 20 y en el cual se recibe un pasamanos 14. El canal guía 21 se forma para evitar la interferencia con el dispositivo guía 20 durante una operación del pasamanos, asegurando de esta manera la operación segura y uniforme del pasamanos.

Como tal, ya que el dispositivo protector 20 se instala en el pasamanos 14, una parte del pasamanos 14 en la zona de entrada de la escalera móvil, no se expone a un ambiente externo y de esta manera se protege contra el ambiente, superando de tal modo el problema de la técnica anterior mencionado con anterioridad. Más específicamente, un riesgo de seguridad, en el cual los brazos del pasajero que agarran el pasamanos 14 se halan hacia delante antes de pisar el escalón 12, originando de tal modo que el pasajero se caiga o se lesione, se previene eficazmente.

El dispositivo protector 20, el cual se construye para prevenir el riesgo de seguridad que puede presentarse en la zona de entrada de la escalera móvil, tiene una longitud predeterminada correspondiente a una distancia entre un extremo frontal del pasamanos 14 y un borde frontal del escalón delantero 12 del escalón. Por lo tanto, el dispositivo protector 20 puede prevenir a un pasajero de agarrar el pasamanos 14 en movimiento para pisar el escalón 12, evitando de esta manera riesgos de seguridad al halarse los brazos del pasajero hacia delante.

Según se muestra en la FIG. 5a, el dispositivo protector 20 se proporciona en el mismo con una unidad de esterilización 30 para esterilizar el pasamanos 14. La unidad de esterilización 30 se instala preferentemente en un lado de entrada 22 o un lado de salida 23 en el canal guía 21, y se separa del pasamanos 14 por una cierta distancia mientras que está de frente al pasamanos 14.

A pesar de que la unidad de esterilización 30 se incluye

preferentemente por lámparas ultravioleta 31, según se muestra en la FIG. 5a, la unidad de de esterilización 30 puede incluirse por un rociador 32 para rociar líquido bacteriano en el pasamanos 14, según se muestra en la FIG. 5b, o un aplicador 33 para aplicar líquido bacteriano al pasamanos 14, según se muestra en la FIG. 5c, si es necesario.

Las lámparas ultravioleta 31 son eficaces en la eliminación de la mayoría de las bacterias, virus y hongos pero no cambian propiedades de objetos irradiados. Además, ya que la unidad de esterilización 30 que utiliza las lámparas ultravioleta 31 puede operarse por una manipulación simple de girar las lámparas ultravioleta 31, su uso es relativamente fácil, y los costos de instalación y mantenimiento se reducen.

En la unidad de esterilización 30 que utiliza lámparas ultravioleta 31, la unidad de esterilización 30 se proporciona preferentemente con una placa reflectora 31a para irradiar luz ultravioleta a superficies laterales así como también una superficie superior del pasamanos 14. La placa reflectora 31a se elabora preferentemente de una placa inoxidable o una placa metálica que es eficaz en el reflejo de luces.

Según se muestra en la FIG. 5b, el rociador 32 incluye toberas 32a a través de las cuales el líquido bacteriano se aplica al pasamanos 14. En este punto, el líquido bacteriano se atomiza a través de las toberas 22a, y el líquido bacteriano atomizado se aplica al pasamanos 14. Por lo tanto, a pesar de que un pasajero agarra el

pasamanos 14 inmediatamente después de la aplicación del líquido bacteriano, las manos del pasajero no se pintan con una cantidad excesiva del líquido bacteriano.

Según se muestra en la FIG. 5c, el aplicador 33 incluye un rodillo 33a que se encuentra en contacto con el pasamanos 14 para aplicar líquido bacteriano al pasamanos 14. El rodillo 33a se suministra con el líquido bacteriano. A medida que el pasamanos 14 se opera, el rodillo 33a que contiene el líquido bacteriano se gira correspondientemente por contacto directo con el pasamanos 14.

El dispositivo protector 20 de acuerdo a la presente invención además incluye un dispositivo visualizador publicitario 40, el cual se proporciona en un lado frontal del dispositivo protector 20 para estar cara arriba y hacia delante. El dispositivo visualizador publicitario 40 puede incluirse por cualquiera de un grupo consistente de LED, un LCD, una lámina EL orgánica y un holograma. En donde el dispositivo visualizador publicitario 40 se incorpora por el LED, el dispositivo visualizador publicitario 40 incluye una pluralidad de píxeles, cada uno comprendiéndose de un LED, y el dispositivo visualizador publicitario 40 se programa de tal forma que los LEDs se parpadean selectivamente para exhibir un carácter o logo deseado.

Mientras tanto, en donde el dispositivo visualizador publicitario 40 se construye por el LCD o la lámina EL orgánica, el dispositivo visualizador publicitario 40 puede mostrar una fotografía en movimiento así como también el carácter y el logo al irradiar selectivamente una contraluz a una pluralidad de celdas que

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contienen una pantalla del dispositivo visualizador publicitario 40.

El dispositivo visualizador publicitario 40 de acuerdo a la presente invención permite al contenido publicitario sustituirse fácilmente con nuevos diferentes contenidos al cambiar la entrada de programa para el dispositivo visualizador publicitario 40. Alternativamente, el dispositivo visualizador publicitario 40 puede proporcionarse con el holograma que muestra una imagen estereoscópica o un reflector de banda publicitario. El dispositivo visualizador publicitario 40 se cubre con una cubierta transparente 41 para proteger la pantalla del dispositivo visualizador publicitario 40 contra el ambiente. La cubierta transparente 41 se elabora de plástico, resina sintética, resina acrílica o de vidrio, y se une de manera removible a la pantalla del dispositivo visualizador publicitario 40. De acuerdo con lo anterior, el dispositivo visualizador publicitario 40 permite a los contenidos publicitarios sustituirse rápida y fácilmente con nuevos contenidos de acuerdo a los cambios del abastecedor publicitario o producción de nuevas marcas.

Según se muestra en la FIG. 6, el dispositivo visualizador publicitario 20 de acuerdo a la presente invención se proporciona además en su pared lateral con una unidad de depuración de aire 50, que funciona para extraer el aire en la zona de entrada de la escalera móvil, remover la bacteria y polvo del aire, y descargar el aire limpio fuera del dispositivo protector 50. La unidad de depuración de aire 50 se comprende de una bomba 51 para extraer el aire externo y descargar el aire fuera del dispositivo protector 50, una lámpara

ultravioleta 52 para esterilizar el aire extraído, y un filtro 53 para remover el polvo del aire extraído.

Más específicamente, la unidad de depuración de aire 50 cumple el proceso de depuración del aire de tal manera que el aire externo se extrae hacia la unidad de depuración de aire 50 a través de una pluralidad de agujeros con salida 24 formados en la pared lateral del dispositivo protector 20 mediante la bomba 51, el aire extraído se esteriliza por luces ultravioleta emitidas de la lámpara ultravioleta 52, el polvo contenido en el aire esterilizado se remueve a través del filtro 53, y el aire filtrado y esterilizado se descarga fuera del dispositivo protector 20 a través de una pluralidad de agujeros con salida 25 formados en la otra pared lateral del dispositivo protector 20. Por consecuencia, el aire en la zona de entrada del dispositivo protector 20 se mantiene en una condición limpia, teniendo de tal modo poco efecto nocivo en los pasajeros.

La electricidad requerida para conducir la unidad de esterilización 30, el rociador 32, el aplicador 33, el dispositivo visualizador publicitario 40 y la unidad de depuración de aire 50 puede desviarse de la energía eléctrica principal suministrada a la escalera móvil. Los componentes anteriores pueden controlarse por una unidad de control (no mostrada) adicionalmente proporcionada en el dispositivo protector 20 o montada sobre una superficie externa del dispositivo protector 20. La unidad de control se opera preferentemente para controlar la unidad de esterilización 30, el rociador 32, el aplicador 33, el dispositivo visualizador publicitario 40

y la unidad de depuración de aire 50 mientras que la escalera móvil se conduce.

APLICABILIDAD INDUSTRIAL

Según se describe anteriormente, la presente invención proporciona un dispositivo protector, que se monta en un pasamanos colocado en una zona de entrada de una escalera móvil para prevenir riesgos de seguridad que pueden presentarse en la zona de entrada.

Ya que el dispositivo protector de acuerdo a la presente invención incluye una unidad de esterilización en el mismo para esterilizar el pasamanos, es posible prevenir a los pasajeros de infectarse por bacterias, virus o gérmenes existentes en el pasamanos.

Además, ya que el dispositivo protector de acuerdo a la presente invención incluye un dispositivo visualizador publicitario sobre una superficie externa del mismo, es posible lograr efectos eficaces de información y de publicidad para empresas y productos.

Además, ya que el dispositivo protector de acuerdo a la presente invención incluye una unidad de depuración de aire en una pared lateral del mismo, que se pretende que extraiga el aire externo en una zona de entrada de una escalera móvil, elimine las sustancias no deseadas tales como bacterias, virus y polvo del aire extraído y descarga del aire limpio fuera del dispositivo protector, es posible mantener el aire en la zona de entrada de la escalera móvil en la condición sanitaria.

A pesar de que la modalidad preferida de la presente invención se ha descrito para propósitos ilustrativos, aquellos expertos en la materia apreciarán que varias modificaciones, adiciones y sustituciones son posibles, sin alejarse del alcance y espíritu de la invención según se describe en las reivindicaciones anexas.

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REIVINDICACIONES

1. Un dispositivo protector el cual se monta de manera removible sobre un pasamanos de escalera móvil, el dispositivo protector comprendiendo:

un canal guía formado en su parte inferior para recibir una parte del pasamanos colocado en la zona de entrada de la escalera móvil.

2. El dispositivo protector según se establece en la reivindicación 1, comprendiendo además una unidad de esterilización proporcionada en el mismo, para esterilizar el pasamanos recibido en el canal guía.

3. El dispositivo protector según se establece en la reivindicación 2, en donde la unidad de esterilización incluye al menos una bomba ultravioleta para irradiar luces ultravioleta al pasamanos.

4. El dispositivo protector según se establece en la reivindicación 3, en donde la unidad de esterilización incluye un medio de aplicación para aplicar el líquido bacteriano al pasamanos.

5. El dispositivo protector según se establece en la reivindicación 1, comprendiendo además un dispositivo visualizador publicitario proporcionado sobre un lado frontal del mismo para estar cara hacia delante.

6. El dispositivo protector según se establece en la reivindicación 1, en donde el dispositivo visualizador publicitario incluye cualquiera seleccionado de un grupo que consiste de un LED, un LCD, una lámina EL orgánica y un holograma.

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7. El dispositivo protector según se establece en la reivindicación 6, en donde el dispositivo visualizador publicitario se cubre con una lámina transparente para proteger la superficie del dispositivo visualizador del dispositivo visualizador publicitario contra un ambiente.

8. El dispositivo protector según se establece en la reivindicación 2 o 5, comprendiendo además una unidad de depuración de aire proporcionada en una pared lateral del mismo para extraer el aire en la zona de entrada de la escalera móvil, eliminar las bacterias y polvo del aire, y descargar el aire limpio fuera del dispositivo protector.

9. El dispositivo protector según se establece en la reivindicación 2 o 5, en donde el dispositivo protector tiene una longitud correspondiente a una distancia entre un extremo frontal del pasamanos y un borde frontal del escalón delantero de la escalera móvil.

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RESUMEN

Se describe un dispositivo protector (20) para un pasamanos en una zona de entrada de una escalera móvil, teniendo un canal guía (21) en su parte inferior para recibir una parte del pasamanos (14). El dispositivo protector incluye un dispositivo visualizador publicitario (40) en su parte frontal, una unidad de esterilización (30) y una unidad de depuración de aire (50) proporcionada en una pared lateral del mismo.

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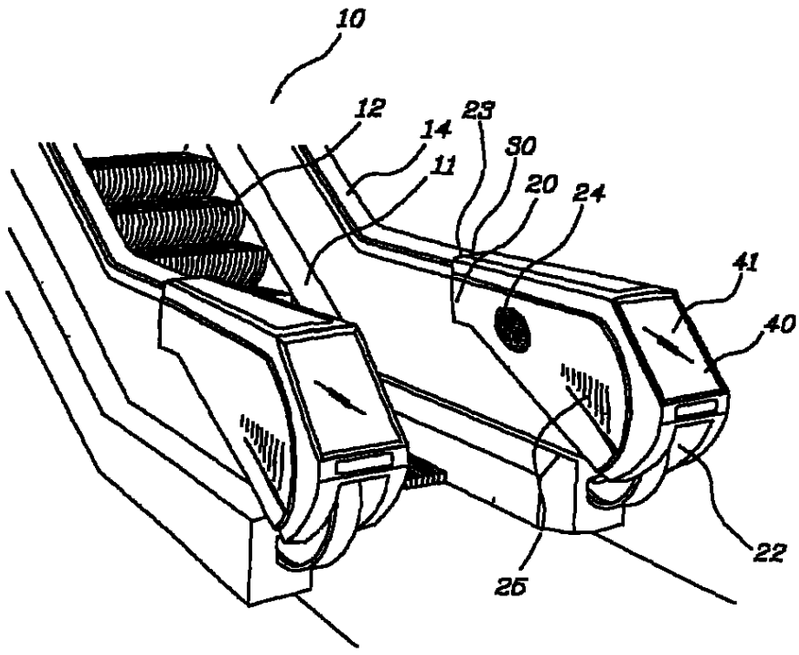
(54) Title: GUARD DEVICE FOR ESCALATOR HANDRAIL



(57) Abstract: A guard device (20) for a handrail in an entry zone of an escalator is disclosed having a guide channel (21) at its bottom to receive a part of the handrail (14) The guard device includes advertising display (40) on its front face a sterilisation unit (30) and an air cleaning unit (50) provided at a side wall thereof

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For two-letter codes and other abbreviations refer to the Guidance Notes on Codes and Abbreviations appearing at the beginning of each regular issue of the PCT Gazette.

GUARD DEVICE FOR ESCALATOR HANDRAIL

Technical Field

The present invention relates to a guard device for a handrail in an entry zone of an escalator, which is intended to assure safety of an entry of the escalator, sanitary maintenance of the handrail by sterilization, efficient advertisement of products and corporations, and clean maintenance of air in the entry of the escalator

Background Art

Generally, escalators are installed on plural stories of buildings in such a way that the escalator are connected to each other in the zigzag fashion, unlike elevators which travels between a riding story and a desired story Accordingly, the escalators are predominantly used in department stores in which various products are sold, subways, airports, terminals and the like, to which people flock, rather than business buildings Recently, moving walkways, which are horizontal traveling type of escalators, are used even in the same story, in order to reduce traffic

Such an escalator is usually designed to travel only in one direction. As shown in FIG 1, the escalator 10 includes a pair of skirt bases 11 which are spaced from each other with a spacing of about 80cm - 120cm therebetween, and a step belt consisting of a plurality of steps 12, which travel continuously while maintaining the upper surfaces in the horizontal position and on which passengers mount.

Each of the pair of skirt bases 11 is provided thereon with a lateral balustrade 13 made of glass or metal The lateral balustrade 13 is provided thereon with a handrail 14 which travels in the same direction and at the same speed as those of the step belt 12, and serves as a handgrip for passengers

The handrails 14, which serve as handgrip, are intended to prevent passengers from falling down or slipping To prevent slippage by the passengers, the handrails 14 are commonly made of a rubber material

Since the handrails 14 come into contact with hands of a multitude of people, if sanitary maintenance of the handrails 14 is not assured, various viruses bacteria and the like harmful to humans are apt to propagate on the handrails 14 Therefore, the handrails 14 must be always maintained in the clean condition. Up to now, sanitary maintenance of the handrails 14 has been fulfilled by frequently mopping and cleaning surfaces of the handrails 14 with neutral detergent or antiseptic solution.

However since the conventional handrails of escalators must be frequently cleaned manually, there is a problem in that the maintenance of the handrail requires very high costs In addition, since the cleaning work cannot positively sterilize and disinfect the handrails by a simple wiping operation, the passengers are exposed to hazard such as disease and bacterial infection due to viruses and bacteria existing on the handrails

Since escalators are used to transport a multitude of people, it is possible to maximize the advertising effectiveness for products and corporations by providing advertising copies to the escalators However, heretofore, there are only triangular guide plates positioned at intersections of crossed escalators to prevent passengers' heads from being caught in the intersections, and small advertising boards erected at transferring area between successive escalators, as the advertising copies

By way of an example, Korean Utility Model Registration No 20-0298362 discloses an advertising object "P" consisting of a printed layer attached on handrails 14 of an escalator, and a film cover attached to the printed layer, as shown in FIG 2 However, since the advertising object "P is attached to the handrails 14 rotating around balustrades of the escalator, the advertising object "P ' comes into contact with a multitude of passengers' hands, leading to maculae and contaminant on the advertising object and color fading of the advertising

object. For this reason, it is difficult to attract people s attention for the advertising object

When getting on the escalator 10 a passenger first grips handrails 14 in the entry zone of the escalator and then treads on a step 12 At this point, because the elderly aged or weaker man or children have slow reflexes, his/her arms are pulled forward by the handrails 14 before treading on the steps 12, thereby causing the passenger to be fall down or to be injured.

In addition of the above problems, since the escalators are used by a multitude of people, dust and various bacteria exist in the entry zone of the escalator, reading to unsanitary equipment. However, although the fact that the entry zone of the escalator is unsanitary has been recognized, a specific solution to overcome the problem cannot be achieved.

Disclosure of the Invention

Accordingly the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is to provide a guard device for an escalator handrail, which receives a part of the handrail in the entry zone of the esealator, to prevent safety hazards which may occur in the entry zone

Another object of the present invention is to provide a guard device for an escalator handrail, which includes a sterilization unit therein to sterilize the handrail thereby preventing passengers from being infected by bacteria, viruses and germs existing on the handrail

A further object of the present invention is to provide a guard device for an escalator handrail, which includes an advertising display provided on an outer surface thereof to provide efficient advertising effects to passengers

Still another object of the present invention is to provide a guard device for an escalator handrail which includes an air-cleaning unit provided at a side wall thereof to maintain air in the entry zone in the clean condition

In order to accomplish the above object, the present invention provides a guard device which is removably mounted on a handrail positioned in an entry zone of an escalator The guard device includes a guide channel formed at its bottom to receive the portion of the handrail positioned in the entry zone, a sterilization unit to sterilize the handrail, and an advertising display provided on an outer surface thereof to provide efficient advertising effects to passengers

Brief Description of the Drawings

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which

FIG 1 is a perspective view of a conventional escalator;

FIG 2 is a perspective view of a conventional escalator, which is provided at its handrail with advertising slogans,

FIG 3 is a perspective view of guard devices according to an embodiment of the present invention, which are mounted on handrails of an escalator, positioned in an entry zone,

FIG 4 is an enlarged perspective view of the guard device according to the present invention, in which a transparent sheet is removed therefrom,

FIG 5a is a cross-sectional view of an example of a sterilization unit provided in the guard device according to the present invention, which includes ultraviolet lamps,

FIG 5b is a cross-sectional view of another example of a sterilization unit provided in the guard device according to the present invention, which includes a sprayer;

FIG 5c is a cross sectional view of a further example of a sterilization unit provided in the guard device according to the present invention, which includes an applicator and

FIG 6 is a side view of an air-cleaning unit provided in the guard device

according to the present invention.

Best Mode for Carrying Out the Invention

Reference should now be made to the drawings, in which the same reference numerals are used throughout the different drawings to designate the same or similar components

Fig 3 is a perspective view showing guard devices for an escalator, according to an embodiment of the present invention, which are mounted on handrails in an entry zone of the escalator, and FIG 4 is a perspective view showing only one of the guard devices in detail As shown in FIGS 3 and 4, the guard device 20 according to the present invention includes a guide channel 21 with a predetermined depth, which is provided along the center line of an bottom surface of the guard device 20 and in which a handrail 14 is received The guide channel 21 is formed to avoid interference with the guard device 20 during an operation of the handrail, thus assuring safe and smooth operation of the handrail.

As such, since the guard device 20 is installed on the handrail 14, a portion of the handrail 14 in the entry zone of the escalator, is not exposed to an external environment and thus protected against the environment, thereby overcoming the above-mentioned prior art problem More specifically, a safety hazard, in which passenger's arms gripping the handrails 14 are pulled forward before treading on the step 12, thereby causing the passenger to fall down or to be injured, is efficiently prevented.

The guard device 20, which is constructed to prevent the safety hazard which may occur in the entry zone of the escalator, has a predetermined length corresponding to a distance between a front end of the handrail 14 and a front edge of the foremost step 12 of the escalator Therefore, the guard device 20 can prevent a passenger from gripping the handrail 14 in advance of treading on the step 12, thus avoiding safety hazards caused by pulling passenger's arms forward.

As shown in FIG 5a, the guard device 20 is provided therein with a

sterilization unit 30 to sterilize the handrail 14 The sterilization unit 30 is preferably installed at an entrance side 22 or an exit side 23 in the guide channel 21, and is spaced from the handrail 14 by a certain distance while facing the handrail 14

Although the sterilization unit 30 is preferably embodied by ultraviolet lamps 31, as shown in FIG 5a, the sterilization unit 30 may be embodied by a sprayer 32 to spray bactericidal liquid on the handrail 14, as shown in FIG 5b or an applicator 33 to apply bactericidal liquid to the handrail 14, as shown in FIG 5c, if necessary

The ultraviolet lamps 31 are effective in eliminating most bacteria, viruses and funguses but do not change properties of irradiated objects Furthermore, since the sterilization unit 30 using the ultraviolet lamps 31 can be operated by a simple manipulation of turning on the ultraviolet lamps 31, its usage is relatively easy, and costs of installation and maintenance are reduced.

In the sterilization unit 30 using the ultraviolet lamps 31, the sterilization unit 30 is preferably provided with a reflecting plate 31a to irradiate ultraviolet light to side surfaces as well as an upper surface of the handrail 14 The reflecting plate 31a is preferably made of a stainless plate or a metal plate which is effective in reflecting lights

As shown in FIG 5b, the sprayer 32 includes nozzles 32a through which bactericidal liquid is applied to the handrail 14 At this point, the bactericidal liquid is atomized through the nozzles 32a, and the atomized bactericidal liquid is applied to the handrail 14 Therefore, even though a passenger grips the handrail 14 immediately after application of the bactericidal liquid, the passenger's hands are not stained with an excessive amount of the bactericidal liquid

As shown in FIG 5c, the applicator 33 includes a roller 33a which is in contact with the handrail 14 to apply bactericidal liquid to the handrail 14 The roller 33a is supplied with the bactericidal liquid As the handrail 14 is operated, the roller 33a containing the bactericidal liquid is correspondingly rotated by

direct contact with the handrail 14

The guard device 20 according to the present invention further includes an advertising display 40, which is provided at a front face of the guard device 20 to face upward and forward. The advertising display 40 may be embodied by any one selected from a group consisting of an LED, an LCD, an organic EL sheet and a hologram. Where the advertising display 40 is embodied by the LED, the advertising display 40 includes a plurality of pixels, each being comprised of an LED, and the advertising display 40 is programmed such that the LEDs are selectively blinked to display a desired character or logo

Meanwhile, where the advertising display 40 is constructed by the LCD or the organic EL sheet, the advertising display 40 can display a moving picture as well as the character and the logo by selectively irradiating a backlight to a plurality of cells constituting a screen of the advertising display 40

The advertising display 40 according to the present invention enables the advertising contents to be easily substituted with new different contents by changing the program input to the advertising display 40 Alternatively, the advertising display 40 may be provided with the hologram displaying a stereoscopic image or an advertising sticker The advertising display 40 is covered with a transparent cover 41 to protect the screen of the advertising display 40 against the environment The transparent cove 41 is made of plastic, synthetic resin, glass or acrylic resin, and removably attached to the screen of the advertising display 40 Accordingly, the advertising display 40 enables the advertising contents to be quickly and easily substituted with new contents according to changes of the advertising provider or production of new brands

As shown in FIG 6, the advertising device 20 according to the present invention is further provided at its side wall with an air cleaning unit 50, which functions to draw air in the entry zone of the escalator remove bacteria and dust from the air, and discharge the cleaned air outside the guard device 50 The air cleaning unit 50 is comprised of a pump 51 to draw outside air and discharge the air outside the guard device 50, an ultraviolet lamp 52 to sterilize the drawn air,

and a filter 53 to remove dust from the drawn air

More specifically, the air cleaning unit 50 fulfills the air-cleaning process in such a way that outside air is drawn into the air cleaning unit 50 through a plurality of through-holes 24 formed at the side wall of the guard device 20 by the pump 51, the drawn air is sterilized by ultraviolet lights emitted from the ultraviolet lamp 52 dust contained in the sterilized air is removed through the filter 53, and the sterilized and filtered air is discharged outside the guard device 20 through a plurality of through-holes 25 formed at the other side wall of the guard device 20 Consequently, the air in the entry zone of the guard device 20 is maintained in a clean condition, thereby having little bad effect on passengers

Electricity required to drive the sterilization unit 30, the sprayer 32, the applicator 33, the advertising display 40 and the air-cleaning unit 50 may be diverged from the main electric power supplied to the escalator The above components may be controlled by a control unit (not shown) additionally provided in the guard device 20 or mounted on an outer surface of the guard device 20 The control unit is preferably operated to control the sterilization unit 30, the sprayer 32, the applicator 33, the advertising display 40 and the air-cleaning unit 50 while the escalator is driven

Industrial Applicability

As described above, the present invention provides a guard device, which is mounted on a handrail positioned in an entry zone of an escalator to prevent safety hazards which may occur in the entry zone

Since the guard device according to the present invention includes a sterilization unit therein to sterilize the handrail, it is possible to prevent passengers from being infected by bacteria, viruses or germs existing on the handrail

Furthermore, since the guard device according to the present invention includes an advertising display on an outer surface thereof, it is possible to

achieve efficient advertising and informing effects for corporations and products

In addition, since the guard device according to the present invention includes an air-cleaning unit at a side wall thereof, which is intended to draw outside air in an entry zone of an escalator, eliminate undesired substances such as bacteria, viruses and dust from the drawn air and discharge the cleaned air outside the guard device, it is possible to maintain air in the entry zone of the escalator in the sanitary condition.

Although the preferred embodiment of the present invention has been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims

Claims

1 A guard device which is removably mounted on an escalator handrail, the guard device comprising

a guide channel formed at its bottom to receive a part of the handrail positioned in the entry zone of the escalator

2 The guard device as set forth in claim 1, further comprising a sterilization unit provided therein, to sterilize the handrail received in the guide channel

3 The guard device as set forth in claim 2, wherein the sterilization unit includes at least one ultraviolet lamp to irradiate ultraviolet lights to the handrail

4 The guard device as set forth in claim 3, wherein the sterilization unit includes an applying means to apply bactericidal liquid to the handrail

5 The guard device as set forth in claim 1, further comprising an advertising display provided on a front face thereof to face forward.

6 The guard device as set forth in claim 1, wherein the advertising display includes any one selected from a group consisting of an LED, an LCD, an organic EL sheet and a hologram.

7 The guard device as set forth in claim 6, wherein the advertising display is covered with a transparent sheet to protect the display surface of the advertising display against an environment.

8 The guard device as set forth in claim 2 or 5, further comprising an air-cleaning unit provided at a side wall thereof to draw air in the entry zone of

the escalator, eliminate bacteria and dust from the air, and discharge the cleaned air outside the guard device

9 The guard device as set forth in claim 2 or 5 wherein the guard device has a length corresponding to a distance between a front end of the handrail and a front edge of the foremost step of the escalator

Fig 1

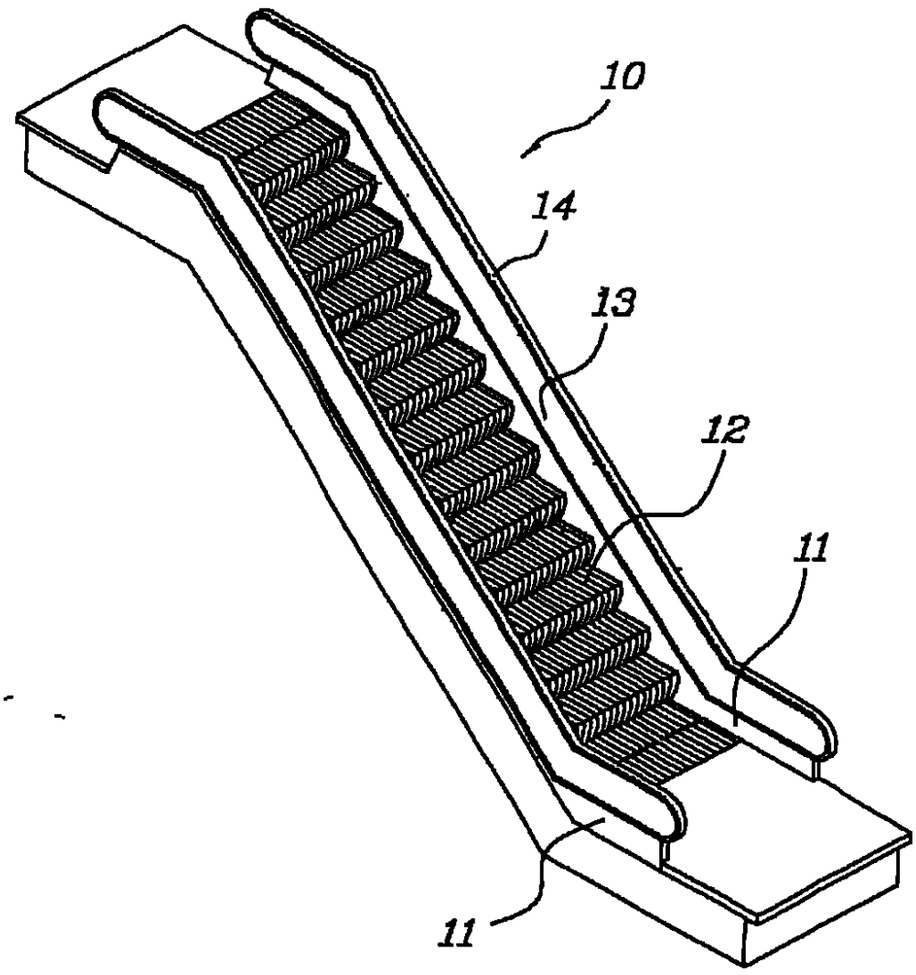

Fig 2

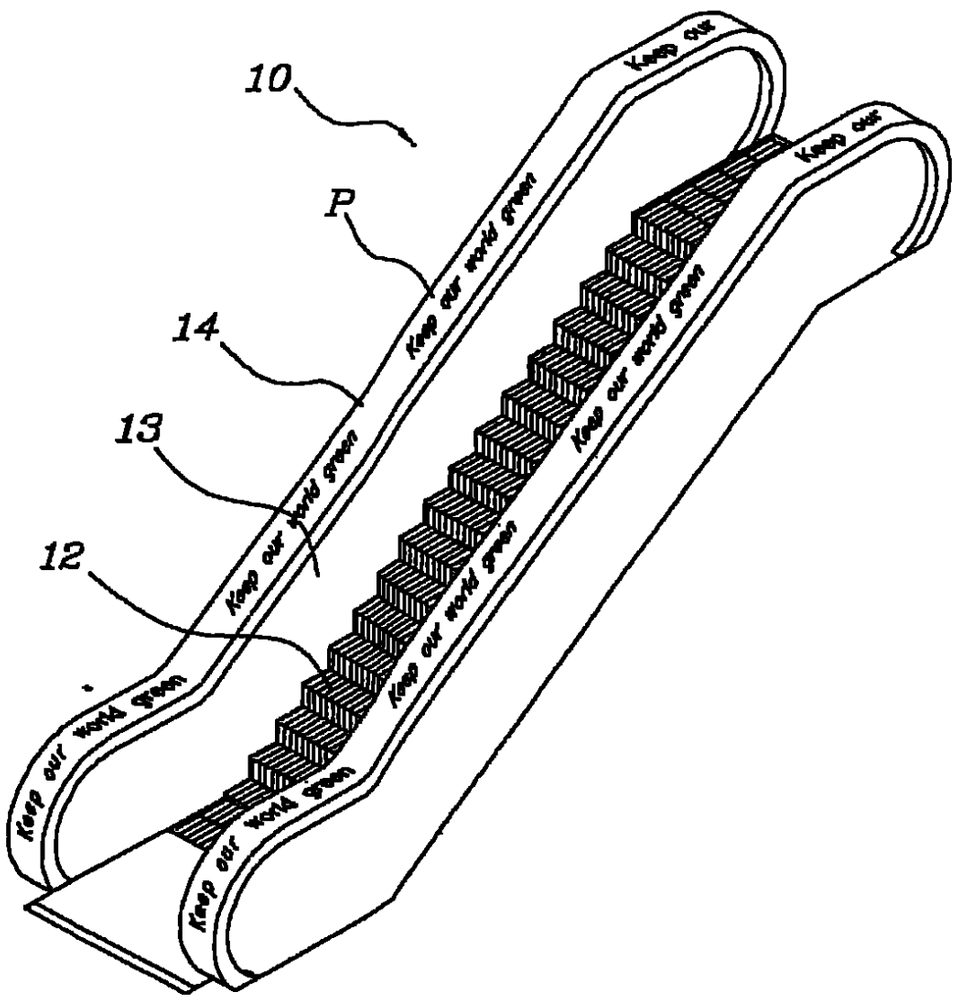
10
P
14
13
12
Keep our world green
Keep our world green
Keep our world green
Keep our world green
Keep our world green
Keep our world green

Fig 3

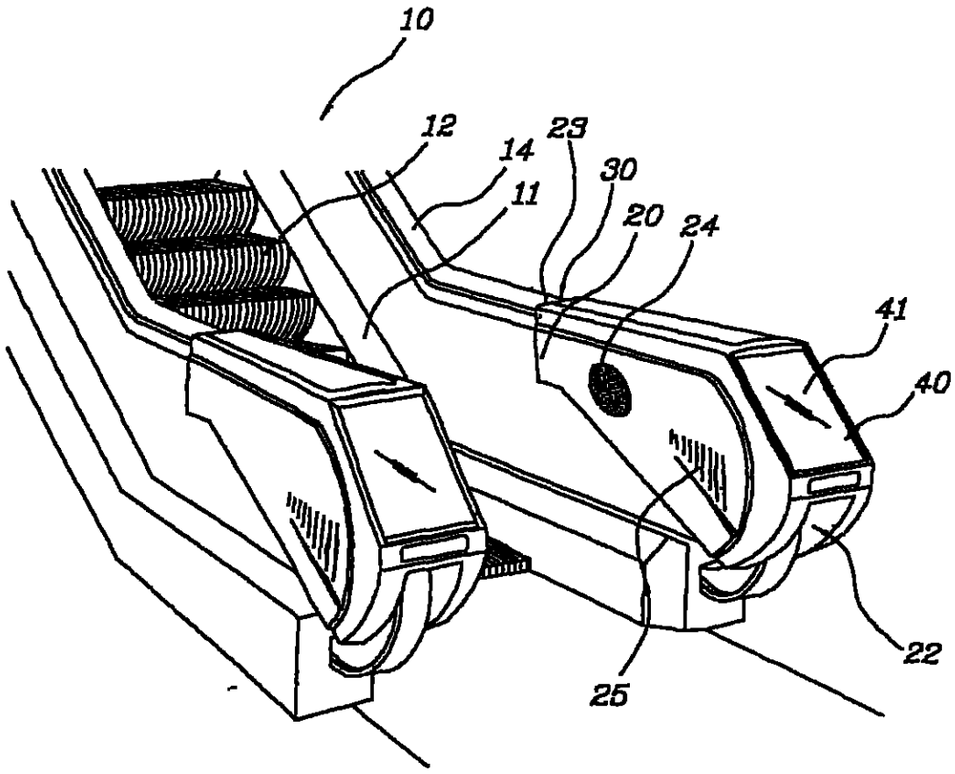

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Fig 4

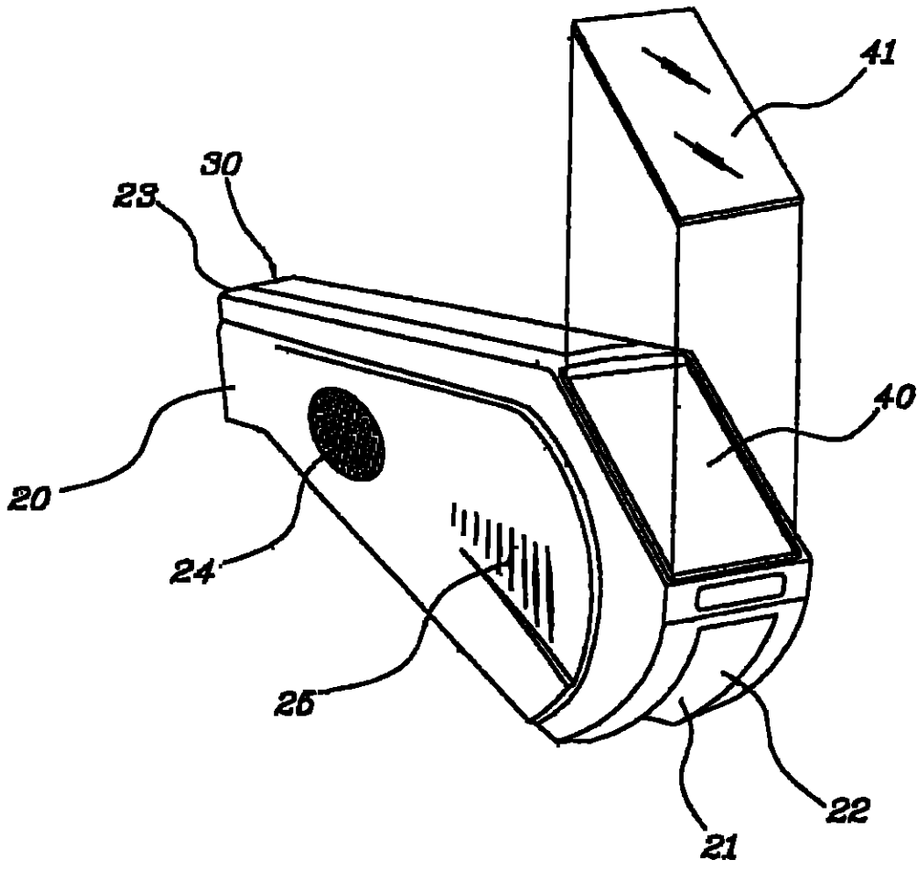


Fig 5a.

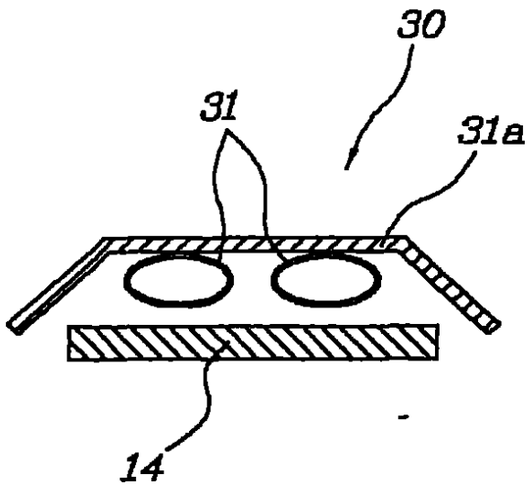


Fig 5b

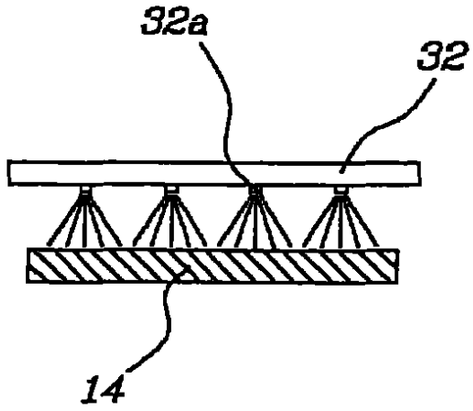


Fig 5c

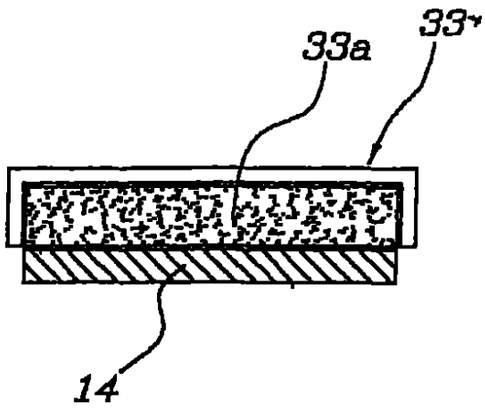
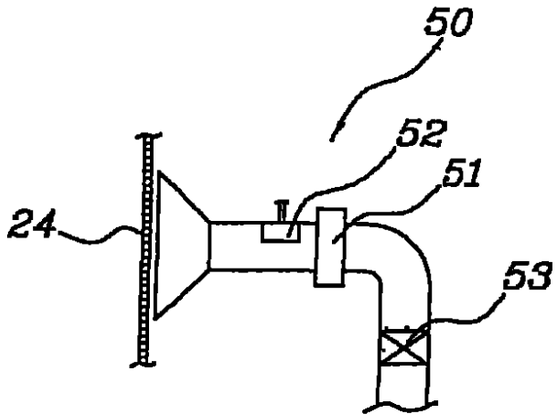


Fig 6



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VIA FAX

Re **Notification of Change of Name (Title) of Applicant**
International Application No PCT/KR2003/002671
International Application Date 05 December 2003
Priority Date 20 August 2003
Our ref PCT/KR/32

Dear Sirs

This is to notify that the above-mentioned International Application was transferred as below

Transferor IM, Chul Soon
Transferee I&K International Co , Ltd.
Date of transfer January 24, 2006

The transferee is a corporation duly established and existing under the laws of Republic of Korea. The address of transferee is **3rd Floor, Jinwoo Building, 48-4, Nonhyun-dong, Gangnam-gu, Seoul, Republic of Korea**

To sustain the transfer of the above-mentioned International Application, enclosed herewith are a notarized **Deed of Assignment** and a **Power of Attorney** signed by the representative of the transferee The original copies of the documents will follow together with the confirmation copy of this letter

Since the due date for the International Application to be entered into National Phase of each contracting country is **February 20, 2006,** we would be grateful if you could properly record the change of the name (title) of the International Application in relevant documents and/or files well before the due date

If you need any further information, please do not hesitate to contact us

Very truly yours,

Jong Yoon KIM/Patent Attorney

公証認可
法務法人 太平洋

전화 3404-0000(대표)
공증 3404-0401 ~3

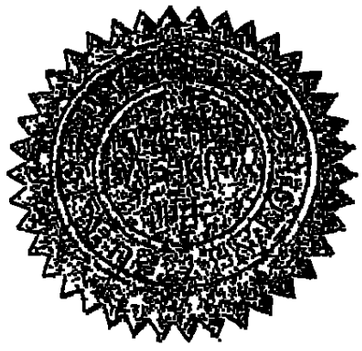
[제41호 서식]

Registered No 175 of 2006

NOTARIAL CERTIFICATE

Law Offices Of Bae, Kim & Lee

647-15 Yoksam-dong, Gangnam-gu, Seoul, Korea



公証認可
法務法人 太平洋

210 ×297 ㎜

71 2

DEED OF ASSIGNMENT

I, **IM, Chul-Soon**, the undersigned, having an address at Bundang-dong 120-4, Bundang-gu, Seongnam si, Gyeonggi-do 463-832, Republic of Korea, as the applicant of the PCT Patent Application as mentioned hereunder, do hereby assign my whole right of the PCT Patent Application to **I&K International Co , Ltd** having a principal business address at 3rd Floor Jinwoo Building, 48-4, Nonhyun-dong Gangnam-gu, Seould, Korea.

Details of the PCT Patent Application to be assigned.

Title of Invention.	GUARD DEVICE FOR ESCALATOR HANDRAIL
PCT Application No	PCT/KR2003/002671
PCT Application Date	5 December 2003
WIPO Publication No	WO2005/018955 AI

Dated this 24th day of January 2006

By _____
IM, Chul-Soon

[제42호 서식]

公証認可 法務法人 太平洋

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등부 2006 년 제 175 호 Registered NO 175 of 2006

인 증 Notarial Certificate

위 양 도 증 에 기재된
임 철 순 은(는)

IM, Chul-Soon

본직의 면전에서 위 사서증서에 자기가 서명날인 한 것임을 자인하였다

personally appeared before me and admitted his(her) subscription to the attached DEED OF ASSIGNMENT

2006 년 01 월 24 일 이 사무소에서 위 인증한다

This is hereby attested on this 24th day of JAN , 2006 at this office

公証認可 法務法人 太平洋
서울특별시 강남구 역삼동 647-15

Law Offices of Bae, Kim & Lee
647-15, Yoksam-Dong
Gangnam-gu, Seoul, Korea

공증담당 변호사

SONG DONG WON
Attorney-at-Law

This office has been authorized by the Minister of Justice the Republic of Korea to act as Notary Public since Oct 9 1998 under Law No 3594

210 ×297 ㎜

73 2부

SHINSEGI Patent Law Firm

Power of Attorney

I/We, the undersigned, do hereby appoint **Shinsegi Patent Law Firm** (Representative Attorney Mr Jong Yoon KIM, registered patent attorney in Korea) in Seoul, Republic of Korea as my/our lawful attorney with full power of substitution and revocation to carry out all necessary actions concerning the following acts on my/our behalf

To represent the undersigned before all the competent International Authorities in connection with the International Application identified below

Title of Invention Guard Device For Escalator Handrail
International Application No PCT/KR2003/002671
Receiving Office The Korea Intellectual Property Office (RO/KR)

Dated this 24th day of January, 2006

I&K International Co , Ltd

3rd Floor, Jinwoo Building, 48-4,
Nonhyun-dong, Gangnam-gu, Seoul
Republic of Korea

SONG, Young-Geun/ Vice President

PATENT COOPERATION TREATY

74 X 96

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis 1 and Administrative Instructions, Section 422)

To

KIM, Jong-Yoon
2nd Floor, Sangwon Building 636-15,
Yeoksam-1dong, Gangnam-gu
Seoul 135-908
Republic of Korea

Date of mailing (day/month/year)	
27 January 2006 (27 01.2006)	
Applicant's or agent's file reference	**IMPORTANT NOTIFICATION**
PCT/KR/32	
International application No.	**International filing date (day/month/year)**
PCT/KR2003/002671	05 December 2003 (05 12.2003)

1 The following indications appeared on record concerning

[X] the applicant [ ] the inventor [ ] the agent [ ] the common representative

Name and Address	State of Nationality	State of Residence
IM, Chul Soon Bundang-dong 120-4 Bundang-gu, Seongnam-si Gyeonggi-do 463-832 Republic of Korea	KR	KR
	Telephone No. 82-2-558-4838	
	Facsimile No. 82-2-557 7134	
	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning

[X] the person [ ] the name [ ] the address [ ] the nationality [ ] the residence

Name and Address	State of Nationality	State of Residence
I&K INTERNATIONAL CO , LTD 3rd Floor Jinwoo Building 48-4, Nonhyun-dong Gangnam-gu Seoul Republic of Korea	KR	KR
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

3. Further observations, if necessary:

4. A copy of this notification has been sent to

[X] the receiving Office
[ ] the International Searching Authority
[ ] the International Preliminary Examining Authority
[X] the designated Offices concerned
[ ] the elected Offices concerned
[ ] other

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Kinam HA
Facsimile No. +41 22 338 7080	Telephone No. (41-22) 338 8031

Form PCT/IB/308 (March 1994) 006893484

ATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PCT/KR/32	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below
International application No PCT/KR2003/002671	International filing date *(day/month/year)* 5 December 2003	(Earliest) Priority Date *(day/month/year)* 20 August 2003
Applicant IM, Chul-Soon et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1 Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4 With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5 With regard to the abstract,

☐ the text is approved as submitted by the applicant

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may within one month from the date of mailing of this international search report, submit comments to this Authority

6 The figure of the drawings to be published with the abstract is Figure No. 3

☒ as suggested by the applicant. ☐ None of the figures

☐ because the applicant failed to suggest a figure

☐ because this figure better characterizes the invention

INTERNATIONAL SEARCH REPORT

International application No
PCT/KR2003/002671

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A guard device (20) for a handrail in an entry zone of an escalator is disclosed, having a guide channel (21) at its bottom to receive a part of the handrail (14) The guard device includes advertising display (40) on its front face, a sterilization unit (30) and an air cleaning unit (50) provided at a side wall thereof.

INTERNATIONAL SEARCH REPORT

International application No
PCT/KR2003/002671

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.[7] B66B 31/02, 29/00

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)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
DWPI IPC B66B 31/02, 29/00 & keywords, escalator travelator, walkway, stairway guard, safety, hood, cover protect, sheath, hide, conceal, box, shield, hand, rail belt, arm, grip samtuse, ultraviolet, sterilise, brush, billboard, advertise, advertise and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
A	DE 29811446 U1 (NOVRATIDIS et al) 12 November 1998 See the drawings	
A	Derwent Abstract Accession No 96-175607/18 Class Q38, JP 08053281 A (MITSUBISHI DENKI BUIL TECHNO SERVICE KK) 27 February 1996 See the figure	
A	Derwent Abstract Accession No 97-294572/27 Class Q38, JP 09110358 A (MITSUBISHI DENKI BUIL TECHNO SERVICE KK) 28 April 1997 See the figure	

☐ Further documents are listed in the continuation of Box C ☒ 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 application or patent 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
5 February 2004	10 FEB 2004
Name and mailing address of the ISA/AU	Authorized officer
AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	VINCE BAGUSAUSKAS Telephone No (02) 6283 2110

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNAT' 'AL SEARCH REPORT

Information on patent family members

International application No
PCT/KR2003/002671

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member
DE	29811446	NIL
JP	08053281	NIL
JP	09110358	NIL

END OF ANNEX

SUPERINDUSTRIA Y COMERCIO
Radicacion : 06016530 00000000 Folios: 82
Fecha (AMD): 2006-02-20 15:34:14
Tramite : 411 PCT-PATENT 370 FASE NACI 411 PRESENTAN
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

79

Industria y Comercio
SUPERINTENDENCIA

Delegatura de Propiedad Industrial
División de Nuevas Creaciones

REQUISITOS NECESARIOS PARA PRESENTACIÓN Y AGILIZACIÓN DEL TRAMITE

	USUARIO	RADICADOR
PATENTE DE INVENCIÓN (✓) MODELO DE UTILIDAD ( )	( )	( )
-Indicación de que se solicita la concesión de una patente. ✓	( )	(✓)
-Datos de identificación del solicitante o de la persona que se presenta la solicitud. ✓	( )	(✓)
-Descripción de la invención ✓	( )	(✓)
-Dibujos de ser estos pertinentes. ✓	( )	(✓)
-Comprobante de Pago de las tasas establecidas. ✓	( )	(✓)
COMPLETA ( ) INCOMPLETA ( )	( )	( )
DISEÑO INDUSTRIAL ( )		
-Indicación de que se solicita el registro de Diseño Industrial.	( )	( )
-Datos de identificación del solicitante o de la persona que se presenta la solicitud.	( )	( )
-Representación gráfica y fotográfica del Diseño Industrial o muestra del Material que incorpora el diseño.	( )	( )
-Comprobante de Pago de las tasas establecidas.	( )	( )
COMPLETA ( ) INCOMPLETA ( )	( )	( )
ESQUEMA DE TRAZADO ( )		
-Indicación de que se solicita el registro de Diseño Industrial.	( )	( )
-Datos de identificación del solicitante o de la persona que se presenta la solicitud.	( )	( )
-Representación gráfica del Esquema Trazado.	( )	( )
-Comprobante de Pago de las tasas establecidas.	( )	( )
COMPLETA ( ) INCOMPLETA ( )	( )	( )

Firma Responsable: _____

Fecha: Febrero 20 de 2006

REPUBLICA DE COLOMBIA
SUPERINTENDENCIA DE INDUSTRIA Y COMERCI

80

Bogotá,
2020

Doctor(a)
MICHELSEN NIÑO LAURA

REFERENCIA	Radicación No.	6 16530
	Solicitud internacional	KR2003/002671
	Fecha inicio fase nacional	20/03/2006
	Trámite	11
	Evento	378
	Actuación	430
	Oficio No.	4604

Como resultado del examen de forma, realizado con fundamento en el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, se le comunica que:

1. La solicitud no contiene la copia del documento en que consta la cesión del derecho a la patente del inventor al solicitante o a su causante. (Art. 26-k) Decisión 486.

2. La solicitud no contiene el poder debidamente otorgado, con el lleno de los requisitos exigidos por los artículos 63 y subsiguientes del Código de Procedimiento Civil. Adicionalmente, deberá presentar el documento que acredita la existencia y representación legal de la sociedad solicitante, cuando ésta fuere persona jurídica.

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enunciados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Unica No.10 de 2001.

ALIX CARMENZA CESPEDES DE VERGEL
Jefe de la división de Nuevas Creaciones

El anterior requerimiento fue notificado por fijación en lista de fecha 28 ABR. 2006.
adpa11