



(19)

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 855 324 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
01.03.2000 Bulletin 2000/09

(51) Int. Cl.⁷: B61D 19/02, E05F 15/00

(43) Date of publication A2:
29.07.1998 Bulletin 1998/31

(21) Application number: 98100745.3

(22) Date of filing: 16.01.1998

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE

Designated Extension States:
AL LT LV MK RO SI

(30) Priority: 22.01.1997 JP 909797

(72) Inventor: Sasaki, Tamotsu
Hitachinaka-shi, Ibaraki-ken (JP)

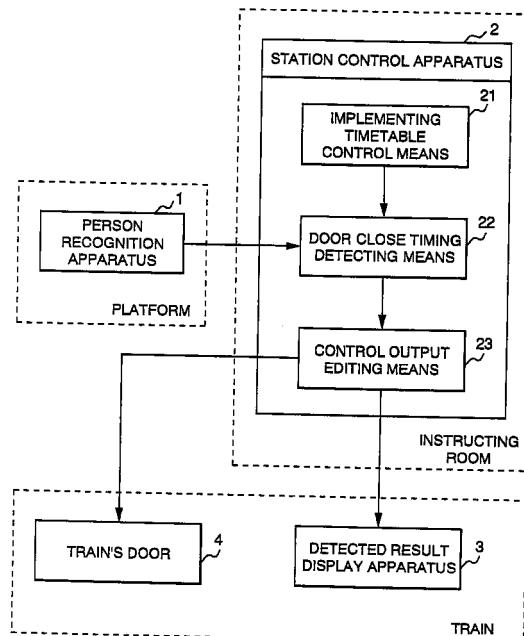
(74) Representative:
Strehl Schübel-Hopf & Partner
Maximilianstrasse 54
80538 München (DE)

(71) Applicant: Hitachi, Ltd.
Chiyoda-ku, Tokyo 101 (JP)

(54) Automatic open/close operation system for train door

(57) An automatic train door open/close system includes a person recognition apparatus 1 for recognising the presence of person near the train door 4, implementing timetable control means 21 for controlling the operation of the train based on a train timetable, means 22 for detecting a timing for closing the door based on the person recognition apparatus at the departure of the train, a control output editing means 23 for outputting open/close control signals to the train door by editing control information on the door close operation, and a detected result display apparatus 3 for indicating whether or not the timing for closing the door is detected. When a timing for closing the cannot be detected by any reason, such as crowded passengers or the like, this condition is informed to the train operator, and a manual door close operation is proposed after confirming the condition near the door. Safety of the passengers is thus ensured.

FIG. 1





DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A,D	PATENT ABSTRACTS OF JAPAN vol. 016, no. 169 (M-1239), 23 April 1992 (1992-04-23) & JP 04 015159 A (TOSHIBA CORP), 20 January 1992 (1992-01-20) * abstract; figures * ---	1	B61D19/02 E05F15/00
A,D	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 07, 31 July 1996 (1996-07-31) & JP 08 058587 A (OKI ELECTRIC IND CO LTD;HONDA DENSHI GIKEN:KK), 5 March 1996 (1996-03-05) * abstract; figures * ---	1	
A	PATENT ABSTRACTS OF JAPAN vol. 013, no. 258 (M-838), 15 June 1989 (1989-06-15) & JP 01 063470 A (TOSHIBA CORP), 9 March 1989 (1989-03-09) * abstract; figures * ---	1	
A	PATENT ABSTRACTS OF JAPAN vol. 015, no. 267 (M-1133), 8 July 1991 (1991-07-08) & JP 03 090471 A (TOSHIBA CORP), 16 April 1991 (1991-04-16) * abstract; figures * -----	1	B61D E05F
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
MUNICH	16 December 1999	Wagner, A	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone			
Y : particularly relevant if combined with another document of the same category			
A : technological background			
O : non-written disclosure			
P : intermediate document			

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 98 10 0745

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-12-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 04015159 A	20-01-1992	NONE	
JP 08058587 A	05-03-1996	NONE	
JP 01063470 A	09-03-1989	NONE	
JP 03090471 A	16-04-1991	NONE	