

Title (en)

Method and arrangement to decrease the risk of being caught between automatic doors

Title (de)

Verfahren und Vorrichtung zur Herabsetzung der Einklemmgefahr bei automatischen Türen

Title (fr)

Méthode et arrangement pour réduire le risque de serrage entre des portes automatiques

Publication

EP 0429835 B2 19970326 (DE)

Application

EP 90119947 A 19901018

Priority

CH 424489 A 19891127

Abstract (en)

[origin: EP0429835A1] By means of this method and the arrangement, in the case of an automatic door, especially in the case of lifts with a controlled door drive which moves doors of a cabin door by means of a motor with a reduction gear and a mechanical drive, and moves doors of a shaft door via mechanical coupling elements, protection against being caught, responding up to the last few mm of a door closing movement with constant force levels, is provided. In this case, this is done by a control error dV being continuously compared during the door closing movement with a maximum permissible control error dVmax produced by a nominal value sensor (3.5) and, if this maximum control error is exceeded, the door is stopped with subsequent reversing. The response levels for an external disturbing force (3.9) are kept constant by a calibration trip computer (3.11) determining values for mass compensation (3.12) and values for friction compensation (3.13) during periodic calibration trips and supplying these values as a compensation value Vk to a second comparator (3.2). In consequence, the magnitude of an external disturbing force (3.9) is also known, or can be measured precisely, with a defined gain of the controller (3.8) and a known torque characteristic of the DC motor (2.1), which creates the precondition for safe protection against being caught. <IMAGE>

IPC 1-7

B66B 13/26

IPC 8 full level

E05F 15/10 (2006.01); **B66B 13/26** (2006.01); **E05F 15/14** (2006.01); **G05B 19/27** (2006.01)

CPC (source: EP US)

B66B 13/26 (2013.01 - EP US); **E05Y 2400/504** (2013.01 - EP US); **E05Y 2400/564** (2013.01 - EP US); **E05Y 2900/104** (2013.01 - EP US)

Cited by

WO2012136485A1; EP1882802A3; EP0624541A3; EP0848309A1; CN103896139A; DE102011001884B3; GB2470538A; GB2470538B; US8183815B2; US7723936B2; WO2007045596A1; WO2015078752A1; US8360209B2; WO2009108186A1; EP2694766B1

Designated contracting state (EPC)

AT BE CH DE DK ES FR GB IT LI NL SE

DOCDB simple family (publication)

EP 0429835 A1 19910605; **EP 0429835 B1 19940713**; **EP 0429835 B2 19970326**; AT E108416 T1 19940715; AU 637164 B2 19930520; AU 6693490 A 19910530; BR 9005971 A 19910924; CA 2030768 A1 19910528; CA 2030768 C 20000111; CN 1020578 C 19930512; CN 1057626 A 19920108; DE 59006423 D1 19940818; DK 0429835 T3 19941017; ES 2059948 T3 19941116; ES 2059948 T5 19970716; FI 905785 A0 19901123; FI 905785 A 19910528; FI 93940 B 19950315; FI 93940 C 19950626; HK 86097 A 19970627; HU 210690 B 19950628; HU 907064 D0 19910528; HU T56606 A 19910930; JP 2870664 B2 19990317; JP H03180684 A 19910806; NO 177612 B 19950710; NO 177612 C 19951018; NO 904539 D0 19901019; NO 904539 L 19910528; PT 96000 A 19920831; PT 96000 B 19980731; RU 2068197 C1 19961020; US 5162711 A 19921110; ZA 909478 B 19911030

DOCDB simple family (application)

EP 90119947 A 19901018; AT 90119947 T 19901018; AU 6693490 A 19901126; BR 9005971 A 19901126; CA 2030768 A 19901123; CN 90109425 A 19901126; DE 59006423 T 19901018; DK 90119947 T 19901018; ES 90119947 T 19901018; FI 905785 A 19901123; HK 86097 A 19970619; HU 706490 A 19901108; JP 32510690 A 19901127; NO 904539 A 19901019; PT 9600090 A 19901126; SU 4831882 A 19901126; US 61500690 A 19901116; ZA 909478 A 19901126