

Title (en)  
Safety brake device

Title (de)  
Bremsfangvorrichtung

Title (fr)  
Dispositif parachute

Publication  
**EP 1733992 B2 20130227 (DE)**

Application  
**EP 06115315 A 20060612**

Priority  
• EP 05105374 A 20050617  
• EP 06115315 A 20060612

Abstract (en)  
[origin: US2007007083A1] A progressive safety device for an elevator includes a brake unit and an actuating unit. The brake unit has a first brake shoe with first spring assemblies and a triangular rotatable support with second and third brake shoes. The actuating unit has an electromagnetic actuator with a locking bolt, a guide bolt with a coaxial compression spring and an actuating arm. On actuation, the compression spring moves the actuating arm against a guide rail whereby grooves on the actuating arm create a frictional engagement with the guide rail turning the actuating arm about a swivel bearing and through a follower turning the support. With the turning motion and the engagement of one of the second and third brake shoes with the guide rail, the first brake shoe is guided against the guide rail and generates the necessary braking force on the guide rail.

IPC 8 full level  
**B66B 5/18** (2006.01); **B66B 5/20** (2006.01)

CPC (source: EP KR US)  
**B66B 5/02** (2013.01 - KR); **B66B 5/16** (2013.01 - KR); **B66B 5/18** (2013.01 - EP KR US); **B66B 5/20** (2013.01 - EP US)

Citation (opposition)  
Opponent :  
WO 0039016 A1 20000706 - OTIS ELEVATOR CO [US]

Cited by  
WO2023148266A1; WO2011113754A1; DE102007021196B4; CN102791603A; RU2718706C1; RU2495290C2; CN112374315A; US2015041256A1; US9637348B2; EP3153451A1; US2023139867A1; US11858781B2; US8511437B2; US9169104B2; WO2013079288A1; WO2021091431A1; WO2012163812A1; WO2015052109A1; WO2017001531A1; WO2011113753A2; US8991561B2; WO2023148267A1; WO2011113753A3; EP3233700B1; WO2016096320A1

Designated contracting state (EPC)  
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DOCDB simple family (publication)  
**US 2007007083 A1 20070111**; **US 7299898 B2 20071127**; AT E457954 T1 20100315; AU 2006202693 A1 20070111; AU 2006202693 B2 20110630; BR PI0601926 A 20070213; BR PI0601926 B1 20180612; CN 1880208 A 20061220; CN 1880208 B 20100915; DE 502006006147 D1 20100401; EP 1733992 A1 20061220; EP 1733992 B1 20100217; EP 1733992 B2 20130227; ES 2341359 T3 20100618; ES 2341359 T5 20130625; JP 2006347771 A 20061228; JP 5026743 B2 20120919; KR 101227710 B1 20130129; KR 20060132506 A 20061221

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**US 42117606 A 20060531**; AT 06115315 T 20060612; AU 2006202693 A 20060616; BR PI0601926 A 20060525; CN 200610092577 A 20060616; DE 502006006147 T 20060612; EP 06115315 A 20060612; ES 06115315 T 20060612; JP 2006159310 A 20060608; KR 20060054621 A 20060617