

Title (en)  
Tunnel multi-storey

Title (de)  
Tunnel mehrgeschossigen

Title (fr)  
Tunnel à plusieurs étages

Publication  
**EP 2317074 A1 20110504 (EN)**

Application  
**EP 09075489 A 20091103**

Priority  
EP 09075489 A 20091103

Abstract (en)  
The tunnel multi deck is a roadway tunnel of circular cross section (1), with two-way separated, characterized by having two slabs (2) (3) along its full width, one placed roughly at the half height of the tunnel and the other placed slightly above the bottom of the tunnel, in order to create three overlapping galleries, isolated and independent: two identical roadway galleries (4) (5), one for each way of traffic, and a service gallery (6), at the bottom. The slabs (2) (3) have openings (7), placed close to the circular wall of the tunnel (1), in one or in both sides, regularly spaced and protected with fireguard devices of box type (8), which are connected through closed vertical access galleries (10), to allow for safe passage of people from the roadway galleries (4) (5) to the service gallery (6). The service gallery (6) is provided with emergency vehicles of shuttle-type (9), circulating suspended from the slab (3), to allow for the access of personnel and the evacuation of people in case of accident or fire inside the tunnel. Lisbon, October 29, 2009

IPC 8 full level  
**E21D 9/14** (2006.01); **E02D 29/045** (2006.01); **E21D 11/00** (2006.01)

CPC (source: EP)  
**E21D 9/14** (2013.01); **E21D 11/003** (2013.01)

Citation (applicant)  
• WO 2004094785 A1 20041104 - OTKRYTOE AKTSIONERNOE OBSHEST [RU], et al  
• EP 1191186 A1 20020327 - TOORENMAN LAMBERTUS ROELOF [NL]

Citation (search report)  
• [AD] WO 2004094785 A1 20041104 - OTKRYTOE AKTSIONERNOE OBSHEST [RU], et al  
• [A] WO 2009051357 A2 20090423 - JUN YOUNG-JIN [KR]  
• [A] WO 2009002199 A1 20081231 - POMPEU SANTOS SILVINO [PT]  
• [A] EP 1191186 A1 20020327 - TOORENMAN LAMBERTUS ROELOF [NL]  
• [A] DE 10249268 A1 20040513 - RICHTER HERBERT [DE], et al  
• [A] DE 10249267 A1 20040513 - RICHTER HERBERT [DE], et al  
• [A] DE 2260639 A1 19740620 - BERGER HERMANN PROF DR ING  
• [A] CH 352697 A 19610315 - ODYSSEAS CHRISTOFI TSANGARIDES [CY]

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Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

Designated extension state (EPC)  
AL BA RS

DOCDB simple family (publication)  
**EP 2317074 A1 20110504; EP 2317074 B1 20111102**; AT E531896 T1 20111115; DK 2317074 T3 20120312; ES 2376724 T3 20120316

DOCDB simple family (application)  
**EP 09075489 A 20091103**; AT 09075489 T 20091103; DK 09075489 T 20091103; ES 09075489 T 20091103