

Title (en)  
ACTUATOR

Publication  
**EP 0450501 B1 19930519 (DE)**

Application  
**EP 91104945 A 19910328**

Priority  
DE 4011119 A 19900406

Abstract (en)  
[origin: EP0450501A1] To limit the extension of its displaceable parts, in particular the telescopic tubes (14, 15) and the piston (16), the actuator has conventional stop rings (23, 28) of round spring steel. Intermediate stop rings (35) lying between them in the stop position are provided in order to reduce the radial forces. <IMAGE>

IPC 1-7  
**F15B 15/16; F15B 15/24**

IPC 8 full level  
**F15B 15/16** (2006.01); **F15B 15/24** (2006.01)

CPC (source: EP)  
**F15B 15/16** (2013.01); **F15B 15/24** (2013.01)

Citation (examination)  
• DE 3320464 A1 19841213 - NEUMEISTER OTTO  
• DE 2649524 C2 19830120

Cited by  
EP2466157A1; EP1947351A1; GB2511745A; GB2511745B; CN103122890A; EP3786462A1; FR2834318A1; EP2466156A1; CN102588381A

Designated contracting state (EPC)  
AT BE CH DE DK ES FR GB IT LI LU NL SE

DOCDB simple family (publication)  
**EP 0450501 A1 19911009; EP 0450501 B1 19930519**; AT E89650 T1 19930615; CS 9100942 A2 19911112; CZ 282174 B6 19970514; DE 4011119 A1 19911010; DE 59100116 D1 19930624; DK 0450501 T3 19931108; ES 2042320 T3 19931201; FI 911451 A0 19910326; FI 911451 A 19911007; FI 92348 B 19940715; FI 92348 C 19941025

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**EP 91104945 A 19910328**; AT 91104945 T 19910328; CS 94291 A 19910405; DE 4011119 A 19900406; DE 59100116 T 19910328; DK 91104945 T 19910328; ES 91104945 T 19910328; FI 911451 A 19910326