

Title (en)

Valve spring retainer with radial force enhancement

Title (de)

Ventilfederteller mit radialer Stützkraftverstärkung

Title (fr)

Cuvette butée de ressort de soupape avec augmentation radial de force

Publication

**EP 1741881 A2 20070110 (DE)**

Application

**EP 06013500 A 20060629**

Priority

DE 102005031090 A 20050630

Abstract (en)

The valve spring disk (11) can be directly engaged in an annular groove in the valve stem. The valve spring rests on an annular disk (12) and two support tongues (13) extending radially inward from it. The radially inner edges of the tongues have recesses for fitting in the annular groove, reducing the tongue end spacing for axial support from the spring side.

IPC 8 full level

**F01L 3/10** (2006.01); **F01L 1/46** (2006.01)

CPC (source: EP KR US)

**F01L 1/462** (2013.01 - EP US); **F01L 3/00** (2013.01 - KR); **F01L 3/10** (2013.01 - EP KR US)

Cited by

DE102017206151B3; US10557387B2; US10690021B2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA HR MK YU

DOCDB simple family (publication)

**EP 1741881 A2 20070110**; **EP 1741881 A3 20070221**; **EP 1741881 B1 20090401**; AT E427414 T1 20090415; DE 502006003304 D1 20090514; JP 2007009920 A 20070118; KR 20070003650 A 20070105; US 2007017474 A1 20070125

DOCDB simple family (application)

**EP 06013500 A 20060629**; AT 06013500 T 20060629; DE 502006003304 T 20060629; JP 2006181871 A 20060630; KR 20060060120 A 20060630; US 47888206 A 20060630