

Title (en)

Mechanical device for varying the phase between a drive shaft and a camshaft of an internal combustion engine

Title (de)

Mechanische Vorrichtung zur Winkelverstellung einer Nockenwelle gegenüber einem Antriebsrad in einer Brennkraftmaschine

Title (fr)

Dispositif mécanique pour varier la phase entre un arbre à cames et son entraînement dans un moteur à combustion interne

Publication

EP 0902169 A1 19990317 (EN)

Application

EP 98203013 A 19980909

Priority

IT PD970198 A 19970911

Abstract (en)

In a mechanical device for varying the phase between a drive shaft and a camshaft (3) of an internal combustion engine, in which the phase variation is achieved by varying the angular position of a body (5), connected kinematically to the drive shaft, relative to that of a shaft (2), connected kinematically to the camshaft (3), by the movement of a piston (4) interposed between the body and the shaft to each of which it is connected by toothed portions (15 17), there are provided stop means (30) for stopping the relative rotation of the body and the shaft, causing the piston (4) to be stopped by engagement in the toothed portions (16, 18) of the shaft (2) and of the body (5) in the stop positions. At least one of those toothed portions has at least one gap (36, 38, 40) in the axial profile of the respective sides of the toothed portions (16, 18), which gap is in a position such that it straddles the edge (19, 20) of the piston (4) in the corresponding stop position. The gap extends for a distance adjacent to the toothed portion (15, 17) of the piston (4) and for a further distance beyond that toothed portion in the direction of further travel beyond the stop position. <IMAGE>

IPC 1-7

F01L 1/344

IPC 8 full level

F01L 1/344 (2006.01)

CPC (source: EP)

F01L 1/34406 (2013.01)

Citation (applicant)

EP 0711238 A1 19960515 - LOSI BRUNO [IT]

Citation (search report)

- [A] EP 0742350 A2 19961113 - CARRARO SPA [IT]
- [A] EP 0702132 A2 19960320 - NIPPON DENSO CO [JP]

Cited by

WO2017041799A1; CN107923273A; US2018298790A1; DE102016216667A1; US10385740B2

Designated contracting state (EPC)

DE FR

DOCDB simple family (publication)

EP 0902169 A1 19990317; EP 0902169 B1 20020626; DE 69806211 D1 20020801; DE 69806211 T2 20030227; IT 1294653 B1 19990412; IT PD970198 A1 19990311

DOCDB simple family (application)

EP 98203013 A 19980909; DE 69806211 T 19980909; IT PD970198 A 19970911