

Title (en)

STARTER FOR CRANKING AN INTERNAL COMBUSTION ENGINE HAVING A PINION SHAFT SUPPORT

Title (de)

STARTER ZUM ANDREHEN EINER BRENNKRAFTMASCHINE MIT RITZELWELLENABSTÜTZUNG

Title (fr)

DÉMARREUR POUR METTRE EN MARCHE UN MOTEUR À COMBUSTION INTERNE, AVEC SOUTIEN DE L'ARBRE DE PIGNON

Publication

EP 2087229 A1 20090812 (DE)

Application

EP 07803176 A 20070903

Priority

- EP 2007059191 W 20070903
- DE 102006051578 A 20061102

Abstract (en)

[origin: WO2008052822A1] The invention relates to a starter (2) for cranking an internal combustion engine, in particular a cantilevered starter (2), having an electric starter motor (6) which has a drive shaft (10) which is provided with an external toothing system (42, 44), a pinion shaft (16) which carries a pinion (20), and a clutch part (28) of a roller freewheel clutch (12) which is arranged between the drive shaft (10) and the pinion shaft (16), has an internal toothing system (46) which meshes with the external toothing system (42, 44) of the drive shaft (10) and can be displaced together with the pinion shaft (16) away from the starter motor (6) in the axial direction of the drive shaft (10) into a starter pinion position (Fig. 2), in which the pinion (20) meshes with a gearwheel or crown gear of the internal combustion engine. In order to load the roller raceways (52, 54) of the roller freewheel clutch (12) to a less pronounced extent as a result of the radial forces which act on the pinion shaft (16) in the region of the pinion (20) during cranking of the internal combustion engine, a device (60; 64) is provided for supporting the pinion shaft (16) directly on a section (42), facing away from the starter motor (6), of the external toothing system (42, 44) of the drive shaft (10).

IPC 8 full level

F02N 15/02 (2006.01); **F02N 15/06** (2006.01)

CPC (source: EP US)

F02N 15/023 (2013.01 - EP US); **F02N 15/062** (2013.01 - EP US); **Y10T 74/134** (2015.01 - EP US)

Citation (search report)

See references of WO 2008052822A1

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 MT NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

DE 102006051578 A1 20080508; CN 101573528 A 20091104; CN 101573528 B 20110713; EP 2087229 A1 20090812; EP 2087229 B1 20130626; US 2010132648 A1 20100603; US 8371259 B2 20130212; WO 2008052822 A1 20080508

DOCDB simple family (application)

DE 102006051578 A 20061102; CN 200780048904 A 20070903; EP 07803176 A 20070903; EP 2007059191 W 20070903; US 31226107 A 20070903