

Title (en)

METHOD FOR MESHING A STARTER PINION OF A STARTING DEVICE INTO A RING GEAR OF AN INTERNAL COMBUSTION ENGINE

Title (de)

VERFAHREN ZUM EINSPIREN EINES ANDREHRITZELS EINER STARTVORRICHTUNG IN EINEM ZAHNKRANZ EINER BRENNKRAFTMASCHINE

Title (fr)

PROCÉDÉ POUR ENGRENER UN PIGNON DE DÉMARRAGE D'UN DISPOSITIF DE DÉMARRAGE DANS UNE COURONNE DENTÉE D'UN MOTEUR À COMBUSTION INTERNE

Publication

**EP 2798197 A1 20141105 (DE)**

Application

**EP 12812615 A 20121220**

Priority

- DE 102011090158 A 20111230
- EP 2012076266 W 20121220

Abstract (en)

[origin: WO2013098172A1] The invention relates to a method for meshing a starter pinion (19) of a starting device (16) into a ring gear (13) of an internal combustion engine (10). The internal combustion engine (10) has a driveshaft (22), and the starting device (16) has a starter motor (25), said driveshaft (22) having a variable rotational speed (n). The internal combustion engine (10) is switched off in a method step (S1), and the starter pinion (19), which is not being rotationally driven by the starter motor (25), is then advanced in the direction of the ring gear (13) by a toe-in actuator (28) by means of a toe-in force (FV) in a method step (S2) until the starter pinion contacts the ring gear. A meshing force (FE) is then exerted onto the starter pinion (19) in a controlled manner in an additional method step (S3) in order to mesh the starter pinion (19) into a tooth gap (34) of the ring gear (13).

IPC 8 full level

**F02N 11/08** (2006.01)

CPC (source: EP US)

**F02N 11/0851** (2013.01 - US); **F02N 11/0855** (2013.01 - EP US); **F02N 11/0844** (2013.01 - EP US); **F02N 2200/022** (2013.01 - EP US); **F02N 2200/047** (2013.01 - US); **F02N 2200/048** (2013.01 - US); **F02N 2300/20** (2013.01 - US); **F02N 2300/2006** (2013.01 - EP US)

Citation (search report)

See references of WO 2013098172A1

Designated contracting state (EPC)

AL 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 RS SE SI SK SM TR

DOCDB simple family (publication)

**WO 2013098172 A1 20130704**; CN 104136763 A 20141105; DE 102011090158 A1 20130704; EP 2798197 A1 20141105; EP 2798197 B1 20210407; HU E055074 T2 20211028; US 2014350829 A1 20141127; US 9494122 B2 20161115

DOCDB simple family (application)

**EP 2012076266 W 20121220**; CN 201280070945 A 20121220; DE 102011090158 A 20111230; EP 12812615 A 20121220; HU E12812615 A 20121220; US 201214369736 A 20121220