

Title (en)  
STARTER FOR AN INTERNAL COMBUSTION ENGINE

Title (de)  
STARTER FÜR EINE BRENNKRAFTMASCHINE

Title (fr)  
DÉMARREUR POUR UN MOTEUR À COMBUSTION INTERNE

Publication  
**EP 2297450 A1 20110323 (DE)**

Application  
**EP 09745679 A 20090506**

Priority  
• EP 2009055472 W 20090506  
• DE 102008001750 A 20080514

Abstract (en)  
[origin: WO2009138346A1] The invention relates to a starter (10) for an internal combustion engine, comprising a starter motor (12) which can be coupled to the internal combustion engine by means of a pinion (22), and a device for engaging the pinion (22) in a gear rim (26) of the internal combustion engine and connecting the starter motor (12) to a DC voltage supply system (30, 31). In order to disconnect the sequence of operations, the device has separate means, in particular separate relays (57, 64; 60), for engaging the pinion (22) on one hand and turning on the starter motor on the other when the internal combustion engine is started, thus preventing reactions of the engagement dynamics on the contact system when the motor current is switched.

IPC 8 full level  
**F02N 11/08** (2006.01); **F02N 15/06** (2006.01)

CPC (source: EP US)  
**F02N 11/0851** (2013.01 - EP US); **F02N 11/087** (2013.01 - EP US); **F02N 15/067** (2013.01 - EP US); **F02N 2011/0874** (2013.01 - EP US); **F02N 2011/0892** (2013.01 - EP US)

Citation (search report)  
See references of WO 2009138346A1

Designated contracting state (EPC)  
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 SE SI SK TR

Designated extension state (EPC)  
AL BA RS

DOCDB simple family (publication)  
**DE 102008001750 A1 20091119**; CN 102089514 A 20110608; EP 2297450 A1 20110323; JP 2011521141 A 20110721; JP 2013127253 A 20130627; US 2011115238 A1 20110519; US 8610297 B2 20131217; WO 2009138346 A1 20091119

DOCDB simple family (application)  
**DE 102008001750 A 20080514**; CN 200980127474 A 20090506; EP 09745679 A 20090506; EP 2009055472 W 20090506; JP 2011508871 A 20090506; JP 2013012551 A 20130125; US 99282009 A 20090506