

Title (en)

STARTER FOR INTERNAL-COMBUSTION ENGINES.

Title (de)

ANDREHVORRICHTUNG FÜR BRENNKRAFTMASCHINEN.

Title (fr)

DISPOSITIF DE DEMARRAGE POUR MOTEURS A COMBUSTION INTERNE.

Publication

EP 0489735 B1 19931208 (DE)

Application

EP 90906905 A 19900526

Priority

DE 3928795 A 19890831

Abstract (en)

[origin: WO9103643A1] Proposed is a starter for internal-combustion engines, with a mounting (27, 28) for the spring-mounted ball (24) of a thrust element which is designed as the indexing pin (18, 19) of an electromagnet (12). The mounting consists of a cover cap (27) which accommodates the ball (24) without any play, the edge (28) of the cover cap being fixed to the indexing pin (18, 19) and acting as a stop for a disc (23) which covers a spring (22) disposed in the indexing pin (18, 19), while the floor of the cover cap (27) has an aperture against whose edge (31) the ball (24) rests. The indexing pin (18, 19), together with the spring (22), disc (23), ball (24) and mounting (27, 28), is designed as a pre-assembled unit and is fixed to the armature (17).

IPC 1-7

F02N 15/06

IPC 8 full level

F02N 11/00 (2006.01); **F02N 15/06** (2006.01)

CPC (source: EP KR US)

F02N 15/06 (2013.01 - KR); **F02N 15/066** (2013.01 - EP US); **Y10T 74/13** (2015.01 - EP US); **Y10T 74/132** (2015.01 - EP US);
Y10T 74/20636 (2015.01 - EP US)

Designated contracting state (EPC)

DE ES FR GB IT SE

DOCDB simple family (publication)

DE 3928795 A1 19910307; BR 9007623 A 19920519; DE 59003810 D1 19940120; EP 0489735 A1 19920617; EP 0489735 B1 19931208;
ES 2047928 T3 19940301; JP H05500546 A 19930204; KR 920704006 A 19921219; US 5243866 A 19930914; WO 9103643 A1 19910321

DOCDB simple family (application)

DE 3928795 A 19890831; BR 9007623 A 19900526; DE 59003810 T 19900526; DE 9000387 W 19900526; EP 90906905 A 19900526;
ES 90906905 T 19900526; JP 50732290 A 19900526; KR 920700447 A 19920228; US 83823192 A 19920226