

Title (en)
DOOR CLOSER

Publication
EP 0409485 B1 19930519 (EN)

Application
EP 90307621 A 19900712

Priority
JP 18958889 A 19890721

Abstract (en)
[origin: EP0409485A1] A door closer (D) for a door is provided with a main shaft (2) to which a cam (3) is secured. The cam (3) is secured to a connecting rod (52) having a piston (14). A return spring (13) is urged by the linear movement of the piston (14). A sub-shaft (5) provided with a cam (6) is disposed near the main shaft (2), and the sub-shaft (5) and the main shaft (2) are connected through the gear engagement with a gear ratio of less than 1 so that the sub-shaft (5) is rotated by an angle of less than 180 DEG even in a case where the main shaft (2) is rotated by an angle of more than 180 DEG. Cam followers (C1 to C4) are disposed in association with the cams (3, 6) and secured to sliding plates (10) connected to the connecting rod (52). The cam followers (C1 to C4) are disposed in such a positional relationship as that when the door is rotated by a small angle, the cam (3) of the main shaft (2) contacts the associated roller (C1 to C2), and that when the door is rotated by a large angle, the cam (6) of the sub-shaft (5) contacts the associated roller (C3 or C4).

IPC 1-7
E05F 3/10

IPC 8 full level
E05F 3/10 (2006.01); **E05F 3/20** (2006.01)

CPC (source: EP)
E05F 3/104 (2013.01); **E05F 3/225** (2013.01); **E05Y 2600/41** (2013.01); **E05Y 2600/452** (2013.01); **E05Y 2900/132** (2013.01)

Cited by
CN108894641A; US11261637B2; CN113939070A; CN116275753A

Designated contracting state (EPC)
DE FR GB

DOCDB simple family (publication)
EP 0409485 A1 19910123; **EP 0409485 B1 19930519**; DE 69001652 D1 19930624; DE 69001652 T2 19940105; JP 2758933 B2 19980528; JP H0355375 A 19910311

DOCDB simple family (application)
EP 90307621 A 19900712; DE 69001652 T 19900712; JP 18958889 A 19890721