

Title (en)  
OIL PAN

Title (de)  
ÖLWANNE

Title (fr)  
CARTER D'HUILE

Publication  
**EP 4155510 A1 20230329 (EN)**

Application  
**EP 22181394 A 20220627**

Priority  
JP 2021155165 A 20210924

Abstract (en)  
An oil pan 10 includes an oil pan main body 11 whose bottom wall 14 includes a deep bottom portion 14A and a shallow bottom portion 14B. The shallow bottom portion 14B is arranged adjacent the deep bottom portion 14A in a crankshaft axial direction 4a and located at a higher position than deep bottom portion 14A. The shallow bottom portion 14B connects with the deep bottom portion 14A through a stepped portion 14C. When a specified amount of oil is stored in the oil pan main body 11, the level of the oil lies above the shallow bottom portion 14B. The shallow bottom portion 14B includes a middle bottom section 14D, a front raised bottom section 14E, and a rear raised bottom section 14F. The middle bottom section 14B occupies a central portion of the shallow bottom portion 14B in a direction crossing the crankshaft 4. The front raised bottom section 14E and the rear raised bottom section 14F are arranged on opposite sides of the middle bottom section 14B in the direction crossing the crankshaft 4 and located at a higher position than the middle bottom section. This structure serves to optimize the volume and level of oil stored in the oil pan main body 11 and reduce mechanical vibration of the oil pan main body 11.

IPC 8 full level  
**F01M 11/00** (2006.01)

CPC (source: EP)  
**F01M 11/0004** (2013.01); **F01M 2011/002** (2013.01); **F01M 2011/0029** (2013.01)

Citation (applicant)  
JP H08161069 A 19960621 - TOYOTA MOTOR CORP

Citation (search report)  
• [X1] US 2021207502 A1 20210708 - ASAMI TAKASHI [JP]  
• [X1] US 2021285347 A1 20210916 - ASAMI TAKASHI [JP]  
• [X1] US 6340012 B1 20020122 - YAMASHITA AKIRA [JP], et al

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

Designated extension state (EPC)  
BA ME

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
**EP 4155510 A1 20230329; EP 4155510 B1 20241002; JP 2023046530 A 20230405**

DOCDB simple family (application)  
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