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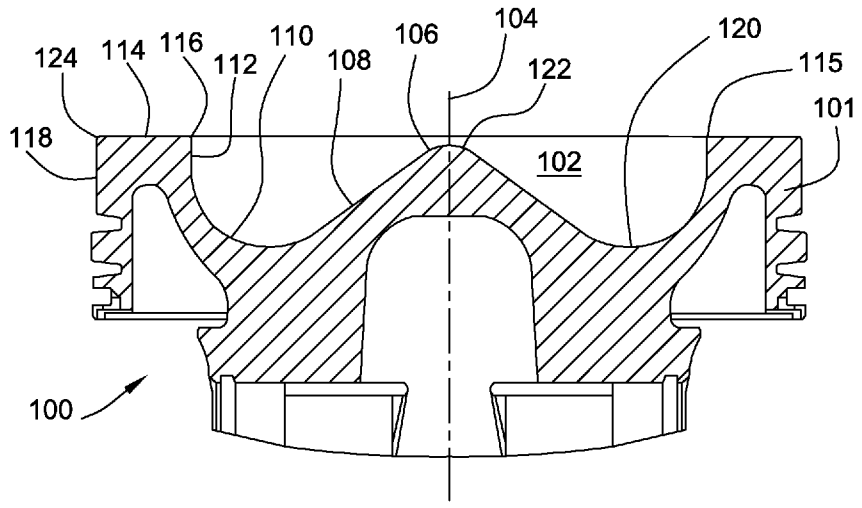


FIG. 1

(57) Abstract: The piston (100) has a crown (101) forming a piston bowl (102). The piston bowl (102) has a center portion (106) with a convex spherical shape, a floor (108) having a convex frusto-conical shape adjacent the center portion, and a base (110) having a concave toroidal shape surrounding the floor. The piston bowl (102) also has a cylindrical wall (112) extending tangentially from the base (110) that surrounds the center portion (106). The piston (100) has a top surface (114) perpendicular to the cylindrical wall (112) along a rim (115) of the piston bowl (102). A ratio between the piston bowl depth and the cylindrical wall length is less than 4, and a ratio between the piston bowl diameter and the piston bowl depth is 4.7.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

F02F 3/26(2006.01)i, F02F 3/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F02F 3/26; F02B 23/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: piston, bowl, diameter and crown

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2004-536992 A (INTERNATIONAL ENGINE INTELLECTUAL PROPERTY) 09 December 2004 See the abstract, figures 15,16	1-10
A	JP 2001-082150 A (YANMAR DIESEL ENGINE CO LTD) 27 March 2001 See the abstract, claims 1-7 and figure 1	1-10
A	JP 2010-248957 A (FUJI HEAVY IND LTD) 04 November 2010 See the abstract, claim 1 and figure 1	1-10
A	JP 2010-048260 A (TOYOTA MOTOR CORP) 04 March 2010 See the abstract, claims 1-6 and figure 1	1-10

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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