ABSTRACT

A piston is provided in which the amount of uncombusted and discharged air-fuel mixture is small, and agglutination of a piston ring due to heat is prevented.

In a piston 2 in which plural peripheral grooves in which piston rings are provided are formed in an outer peripheral surface, as the relation between an inner diameter B of a cylinder 1 and a distance L between an upper surface of the piston and an upper surface of a top peripheral groove 4a, $L/B \leq 0.1$ holds. A cooling chamber 5a is formed in close vicinity to the top peripheral groove. A dead volume S partitioned with the piston, a cylinder liner 11 and a top piston ring 3a is reduced, and the amount of air-fuel mixture enclosed here and discharged in uncombusted state is reduced. Further, agglutination of the top piston ring to the cylinder due to thermal load can be prevented with the cooling chamber 5a. The thermal efficiency as an engine is improved in comparison with conventional art.

CLAIMS

[Claim 1]

A piston in which a plurality of peripheral grooves in which piston rings are provided are formed in an outer peripheral surface,

wherein as relation between an inner diameter B of a cylinder accommodating the piston and a distance L between an upper surface of the piston and an upper surface of a top peripheral groove, $L/B \leq 0.1$ holds, and

wherein a cooling chamber is formed in close vicinity to the top peripheral groove.

[Claim 2]

An engine in which a piston where a piston ring is respectively attached to a plurality of peripheral grooves formed in an outer peripheral surface is slidably provided in a cylinder,

wherein as relation between an inner diameter B of the cylinder accommodating the piston and a distance L between an upper surface of the piston and an upper surface of a top peripheral groove, $L/B \leq 0.1$ holds, and

wherein a cooling chamber is formed in close vicinity to the top peripheral groove.

[Claim 3]

The engine according to claim 2, wherein the engine is a gas engine having a break mean effective

pressure Pme of 1.8 MPa or higher.

Dated this 17TH day of April 2012

Of Anand and Anand Advocates
Agents for the Applicant

Fig. 1A

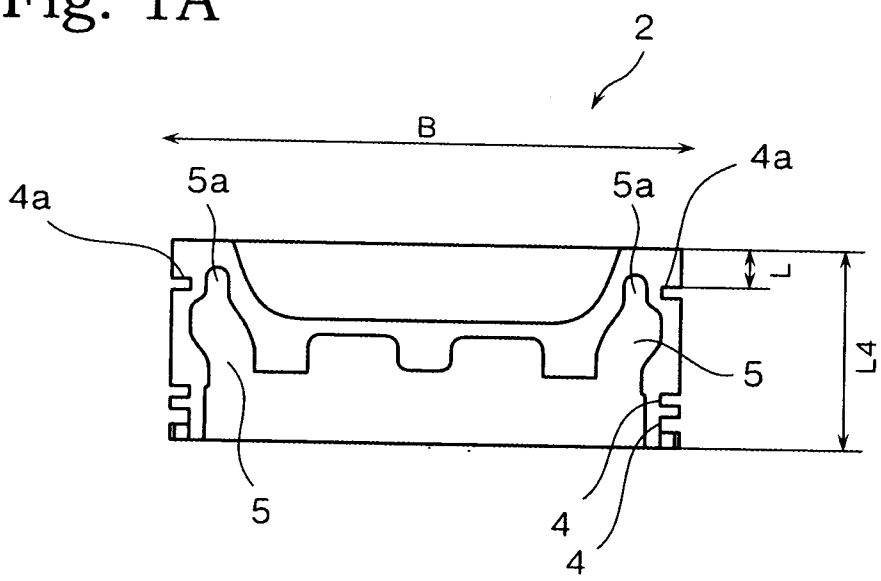


Fig. 1B

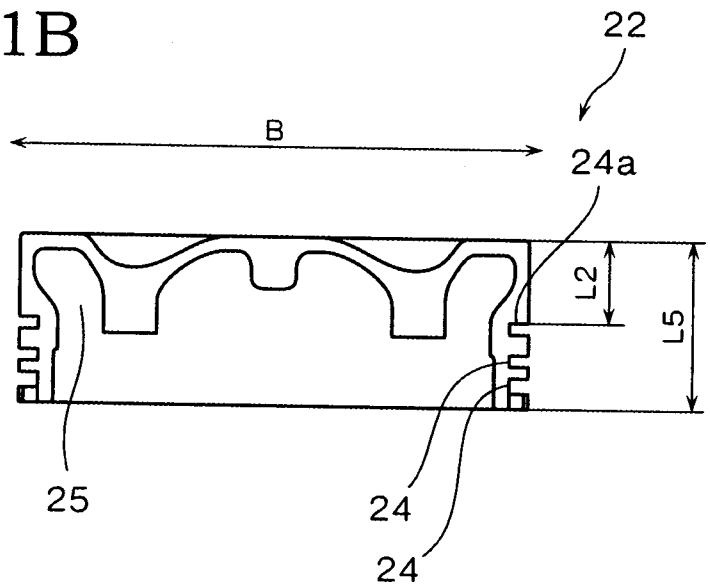


Fig. 2A

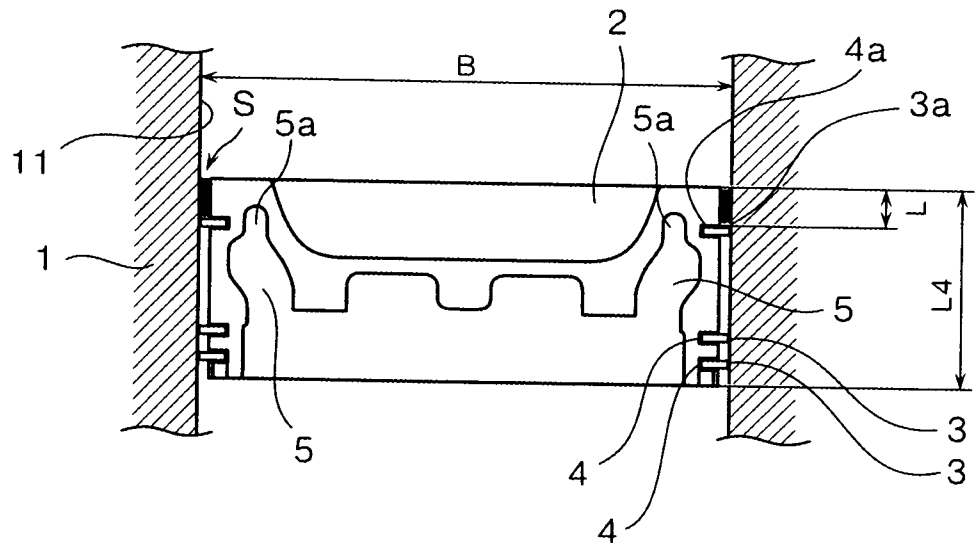
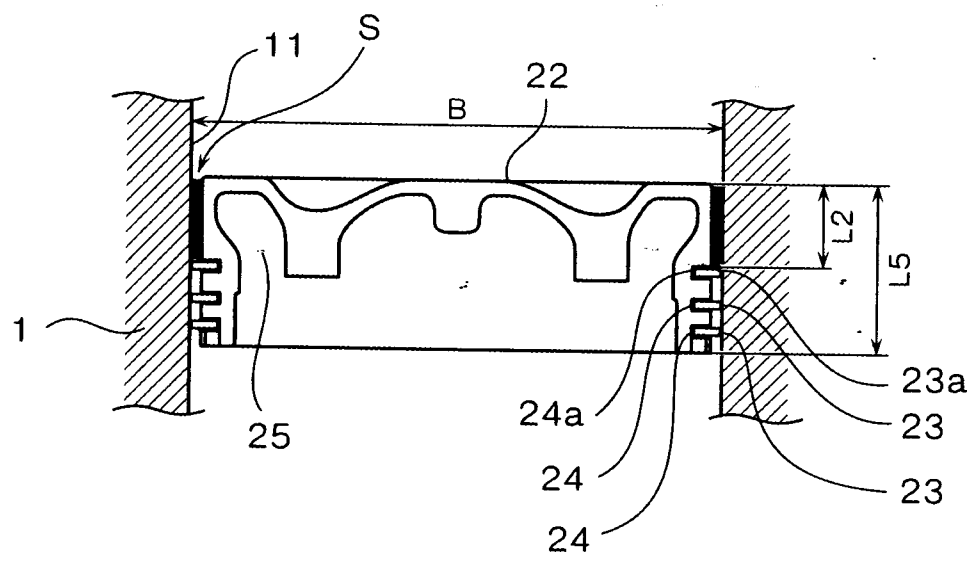
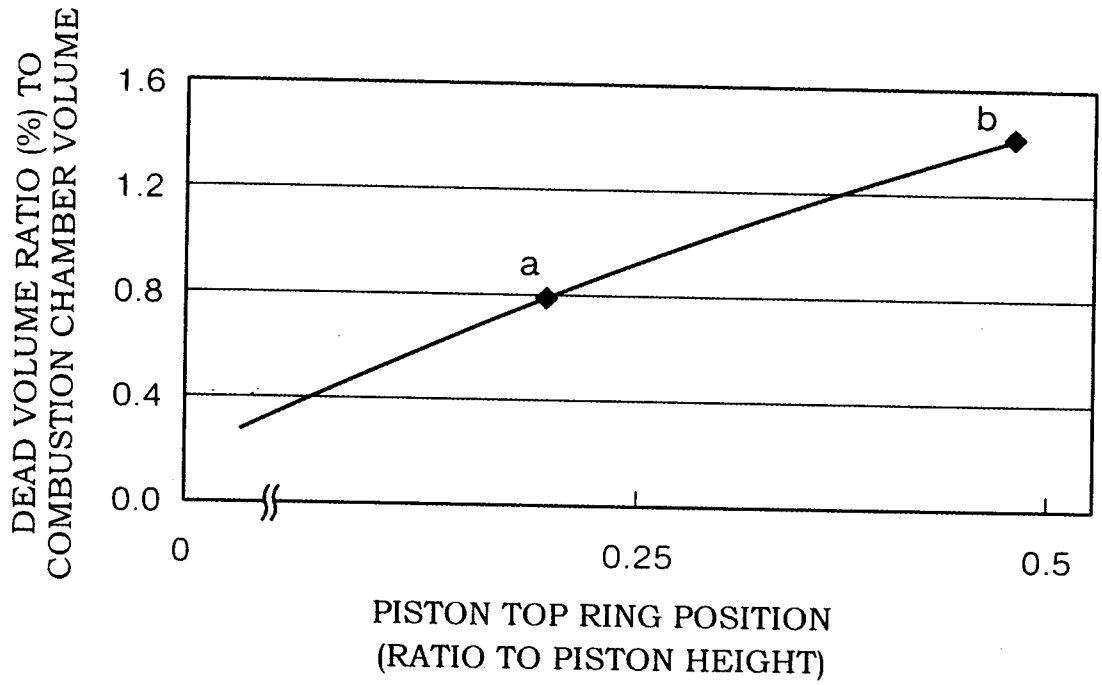


Fig. 2B



Archana Shanker
Of Anand and Anand Advocates
Agents for the Applicant

Fig. 3



Archana Shanker
Of Anand and Anand Advocates
Agents for the Applicant

Fig. 4A

EMBODIMENT

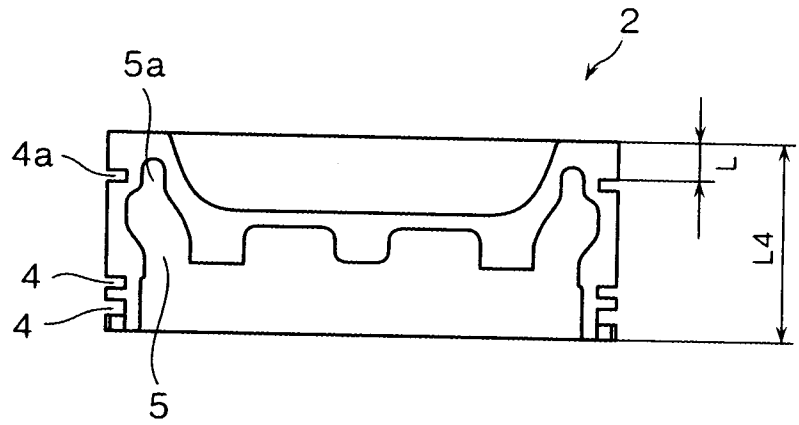


Fig. 4B

CONVENTIONAL ART

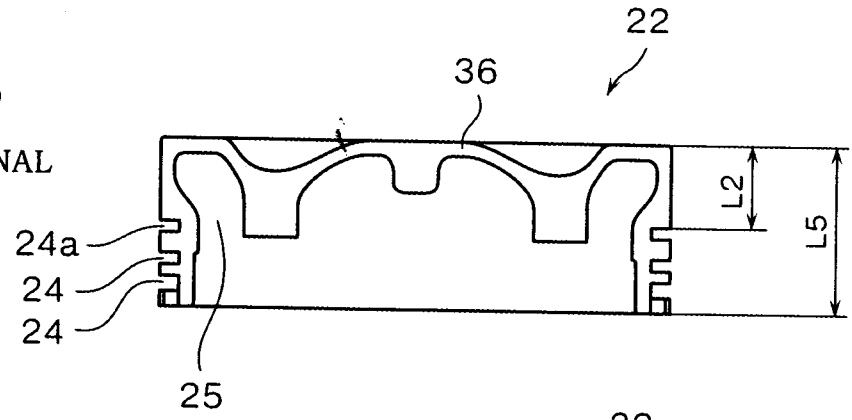


Fig. 4C

COMPARATIVE EXAMPLE 1

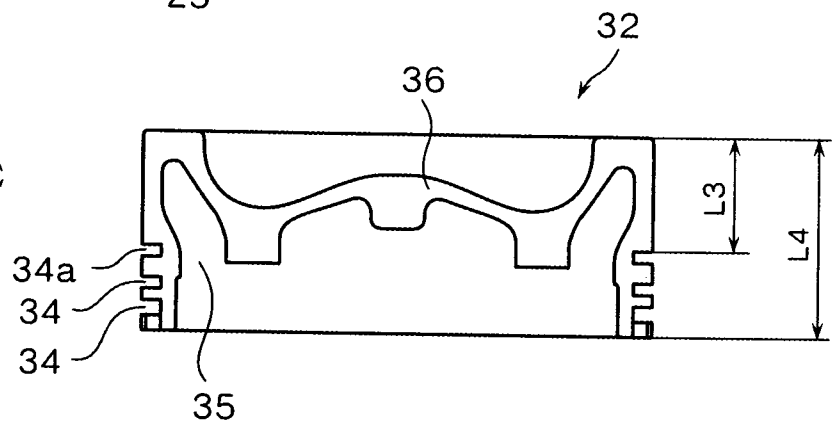
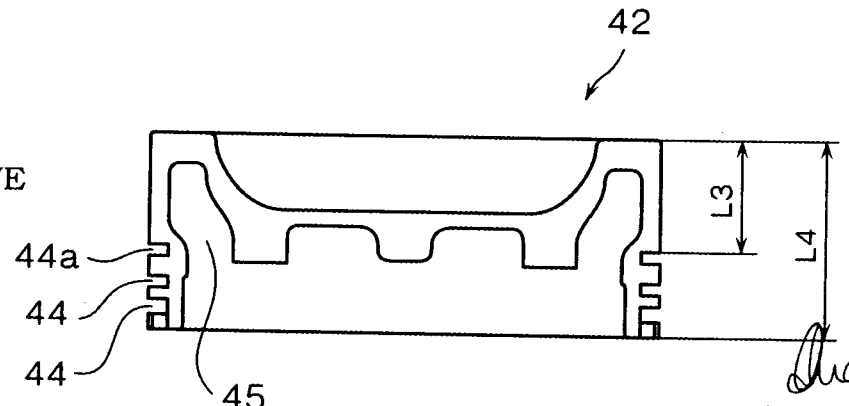


Fig. 4D

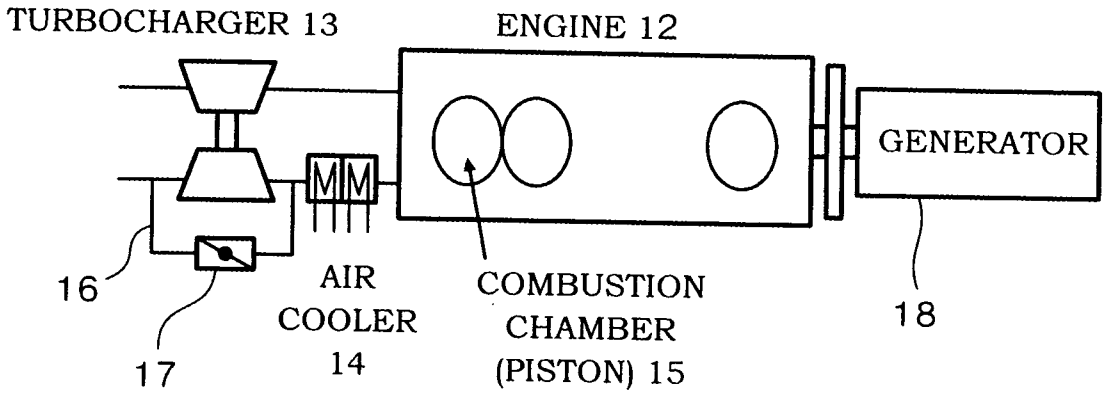
COMPARATIVE EXAMPLE 2



Archana Shanker
Of Anand and Anand Advocates
Agents for the Applicant

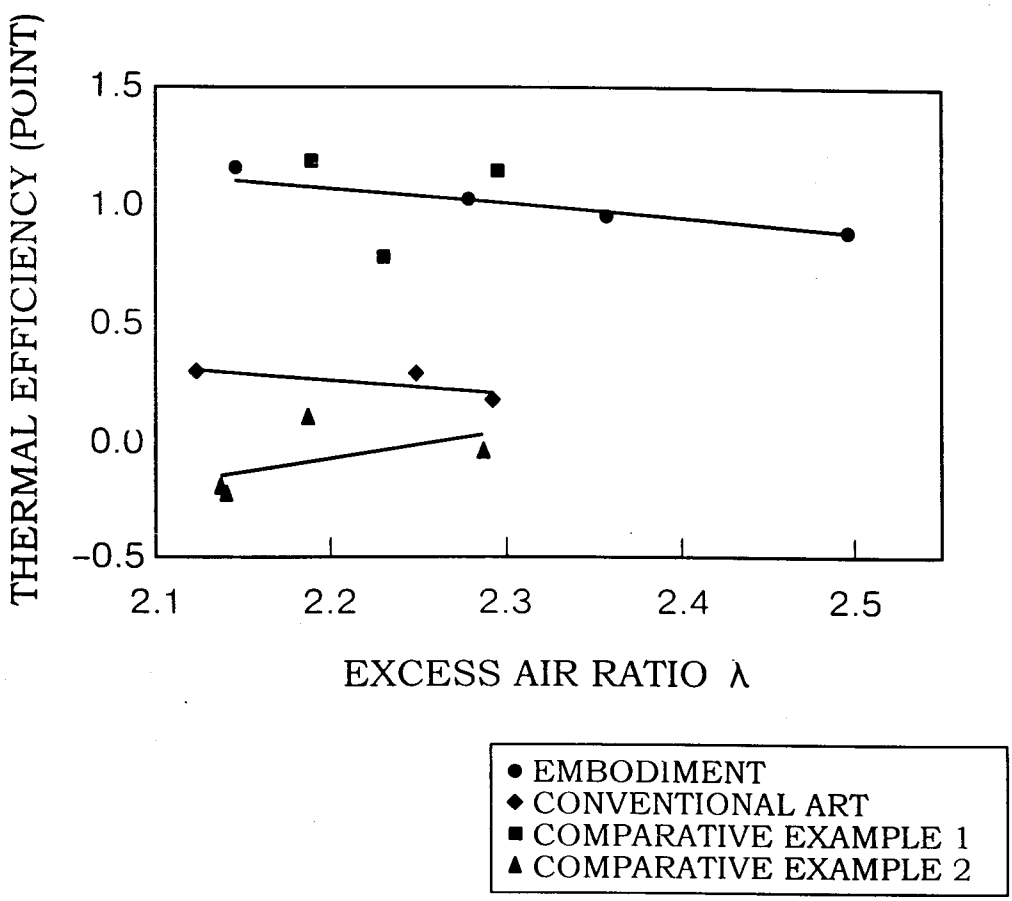
ORIGINAL

Fig. 5



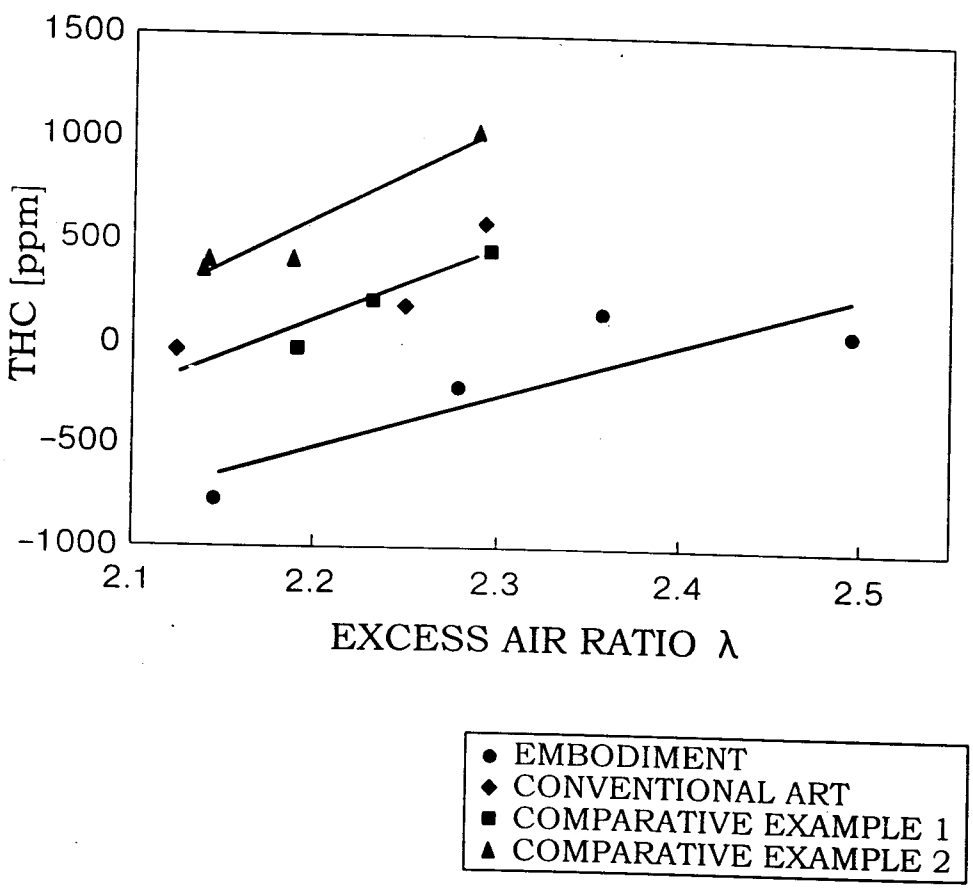
Archana Shanker
Of Anand and Anand Advocates
Agents for the Applicant

Fig. 6



Archana Shanker
Of Anand and Anand Advocates
Agents for the Applicant

Fig. 7



Archana Shanker
Of Anand and Anand Advocates
Agents for the Applicant