CLAIMS

1. A polymerization reaction apparatus comprising:

a polymerization reaction vessel for performing a polymerization reaction of a raw material mixture comprising a monomer;

~~a rotatable shaft;~~

a stirring blade fixed to a~~the~~ rotatable shaft, which stirs the raw material mixture within the polymerization reaction vessel; and

a shaft seal bearing part which supports the shaft,

wherein the shaft seal bearing part comprises a shaft sealing part comprising:

a shaft seal portion (A);

a void portion formed between the shaft seal portion (A) and the polymerization reaction vessel;

a shaft seal portion (B) formed between the void portion and the polymerization reaction vessel; and

a liquid inlet for introducing a liquid containing a polymerization inhibitor into the void portion, and

wherein the liquid introduced from the liquid inlet is removed through the void portion into the polymerization reaction vessel and~~.~~

wherein the shaft seal portion (B) comprises a lip seal.

2. The polymerization reaction apparatus according to

claim 1, wherein the shaft seal portion (A) comprises a mechanical seal.

~~3. The polymerization reaction apparatus according to claim 1 or 2, wherein the shaft seal portion (B) comprises a lip seal.~~

3~~4~~. A method of producing a polymer by using the polymerization reaction apparatus according to ~~any one of~~ claim~~s~~ 1 or 2~~to 3~~, comprising a step of:

continuously feeding the raw material mixture containing the monomer into the polymerization reaction vessel to carry out the polymerization reaction, while the liquid containing the polymerization inhibitor is introduced into the void portion through the liquid inlet.

4~~5~~. The method of producing the polymer according to claim 3~~4~~, wherein the liquid comprises a mixture of the monomer and the polymerization inhibitor dissolved in the monomer.