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問１
[0002]
FIG. 1 illustrates an example of a conventional organic-material injection nozzle. An injection nozzle 10 is connected to an outer wall 21 of a chamber by using a screwing part 12 or the like.
[0003]
The chamber 20 and the injection nozzle 10 are in contact with vaporized source material passing through an injection hole 11 during a deposition process. Thus, the temperature of the chamber 20 and the injection nozzle 10 becomes high due to heat transmitted from the vaporized source material and then becomes low again when the deposition process is completed. During repeated deposition processes, the chamber 20 and the injection nozzle 10 are repeatedly expanded and shrunk due to repeated addition/removal of heat, which results in a repeated load on the chamber 20 and the injection nozzle 10. The repeated load due to addition/removal of heat may unfortunately cause looseness or a crack at the screwing part 12 connecting the injection nozzle 10 to the outer wall 21 of the chamber, which may result in a small gap formed between the injection nozzle 10 and the outer wall 21 of the chamber.
[0004]
Such damage caused at a connection part between an injection nozzle and a chamber leaks vaporized source material inside the chamber through the damaged part. Thus, high-cost source material is lost, and also the leaked source material causes a problem of contamination on areas other than a substrate.

問２
[0010]
FIG. 1 is a sectional view illustrating a porous plastic bearing according to a first embodiment, and FIG. 2 is a sectional view taken along the line II-II of FIG. 1. The drawings illustrate a shaft 1 (rotary shaft) and a sliding bearing 2 that supports the shaft 1 rotatably and is made of a porous plastic. The sliding bearing 2 includes an aggregated sintered body of acrylonitrile-butadiene-styrene (ABS) resin made plastic particles 3 and liquid lubricant 4 impregnated in the aggregated sintered body. Through holes 3a existing between the plastic particles 3, the liquid lubricant 4 flows. The liquid lubricant 4 also oozes out to the inner surface of the sliding bearing 2 from the holes 3a.
[0011]
More specifically, the sliding bearing 2 is formed by aggregating many (more than one) plastic particles 3 each having a volume of 0.004 to 4 cubic millimeter, and sintering the aggregation of the plastic particles 3 having a porosity of 10 to 30%.
[0012]
Rotation of the shaft 1 generates negative pressure on an anti-load side between the shaft 1 and the inner surface of the sliding bearing 2. Thus, the liquid lubricant 4 impregnated between the plastic particles 3 of the sliding bearing 2 oozes out to the inner surface of the sliding bearing 2 and reaches a load part of the inner surface of the sliding bearing 2 that is closest to the shaft 1, generating positive pressure at the load part, thereby preventing contact between the shaft 1 and the sliding bearing 2. Therefore, the friction resistance between the shaft 1 and the sliding bearing 2 is reduced.

問３
（１）　stepの語を使用するクレーム
1.　A method of manufacturing a gear, the method comprising:
a gear processing step of machining steel material so as to form a gear having a predetermined shape; and
a quenching step of quenching the gear by heating the formed gear up to austenite region and then rapidly cooling the gear down to martensite region in an atmosphere containing carbonizing gas and ammonia gas,
wherein the quenching step includes a step of adjusting a volume percentage of a remaining austenite volume on the outermost surface of the gear including a tooth surface to 40 to 80 v/v%.

（２）　stepの語を使用しないクレーム
1.　A method of manufacturing a gear, the method comprising:
forming a gear having a predetermined shape by machining steel material; and
quenching the gear by heating the formed gear up to austenite region and the rapidly cooling the gear down to martensite region in an atmosphere containing carbonizing gas and ammonia gas,
wherein during quenching the gear, a volume percentage of a remaining austenite volume on the outermost surface of the gear including a tooth surface is adjusted to 40 to 80 v/v%.