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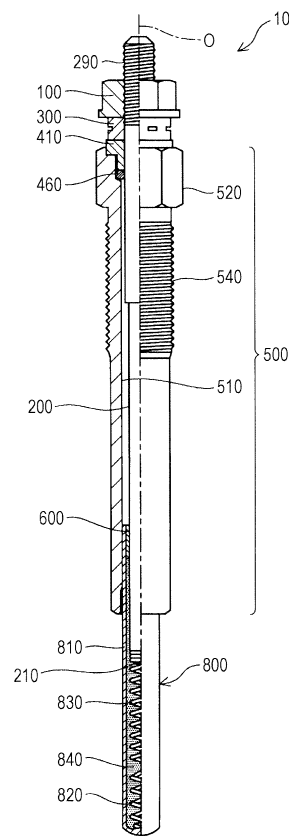
(54) **Sheathed heater, glow plug**

(57) [Objective] To improve durability of a sheath heater.

[Means for Solution] A sheath heater includes a sheath tube, a heating unit, and a magnesium oxide. The sheath tube is a tubular member whose one end is closed.

The heating unit generates heat by transmission of electricity and is arranged inside the sheath tube. The magnesium oxide is arranged between the sheath tube and the heating unit and filled directly in contact with the sheath tube. The sheath tube is not thermally contracted when a temperature is increased from 20°C to 1200°C. In the sheath tube, an average thermal expansion rate is equal to or more than $13 \times 10^{-6}/K$ and equal to or less than $18 \times 10^{-6}/K$ when the temperature is increased from 20°C to 1200°C.

FIG. 1



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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 7 January 2016	Examiner Catana, Cosmin
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



LACK OF UNITY OF INVENTION
SHEET B

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

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1. claims: 2-12(completely); 1, 17(partially)

Sheath tube made of a Ni alloy for a glow plug.

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2. claims: 13-16(completely); 1, 17(partially)

Sheath tube made of a Fe alloy for a glow plug.

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