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(54) Title: OPTICAL SENSING SYSTEM FOR DETERMINING HYDROGEN PARTIAL PRESSURE

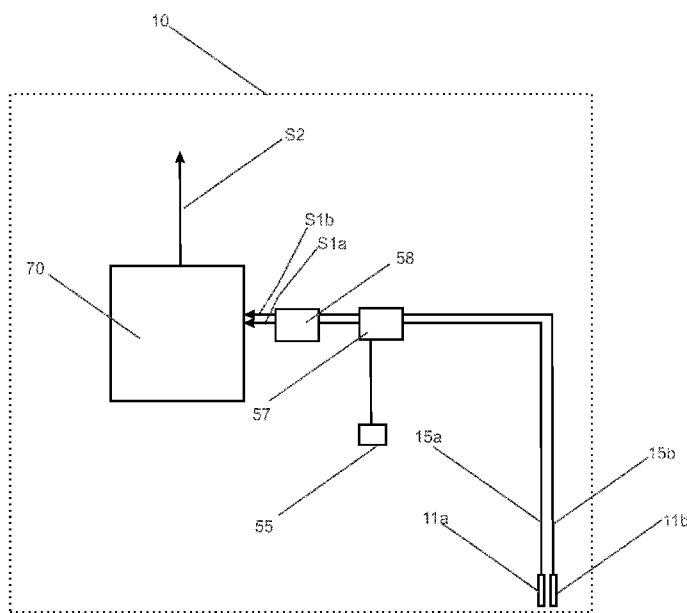


Fig. 1

(57) Abstract: An optical sensing system for sensing hydrogen in a fluid comprising a first optical sensor comprising a first optical fiber, wherein an end portion of the first optical fiber is coated with a first hydrogen-sensitive multilayer on an end surface perpendicular to a longitudinal axis of the first optical fiber, the first multilayer being adapted to change its optical properties dependent on a hydrogen partial pressure in the fluid and dependent on a temperature of the fluid, with a known first characteristic; a second optical sensor comprising a second optical fiber, wherein an end portion of the second optical fiber is coated with a second hydrogen-sensitive multilayer on an end surface perpendicular to the longitudinal axis of the second optical fiber, the second multilayer being adapted to change its optical properties dependent on the hydrogen partial pressure in the fluid and dependent on a temperature of the fluid, with a known second characteristic which is different from the first characteristic; at least one light source adapted for coupling light into the first optical fiber and the second optical fiber, at least one light detector adapted for detecting light reflected by the first and second multilayer, a control unit adapted for calculating the hydrogen partial pressure in the fluid by using the first characteristic and the second characteristic and an output signal of the at least one light detector.



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