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(54) Title: UV AIR TREATMENT METHOD AND DEVICE

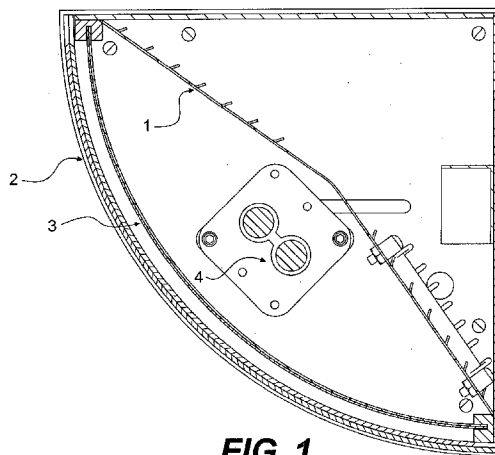


FIG. 1

(57) Abstract: The present invention relates to methods and devices for providing microbial control and/or disinfection/remediation of an environment. The methods generally comprise: generating a Purified Hydrogen Peroxide Gas (PHPG) that is substantially free of, e.g., hydration, ozone, plasma species, and/or organic species; and directing the gas comprising primarily PHPG into the environment such that the PHPG acts to provide microbial control and/or disinfection/remediation in the environment, preferably both on surfaces and in the air. The vaporous hydrogen peroxide is generated from oxygen and water of the ambient air. Further, a diffuser apparatus for producing PHPG is disclosed, the latter comprising a source of ultraviolet light; a metal or metal oxide photo catalyst (e.g. TiO₂), catalyst substrate structure; and an air distribution mechanism, wherein the morphology of the catalyst on its substrate is a thin, sail-like air-permeable structure, situated perpendicular to air flow through the diffuser apparatus; and wherein said morphology is supposed to alter the reaction equilibrium of the catalyst such that it produces hydrogen peroxide from both the oxidation of water and from the reduction of dioxygen.

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