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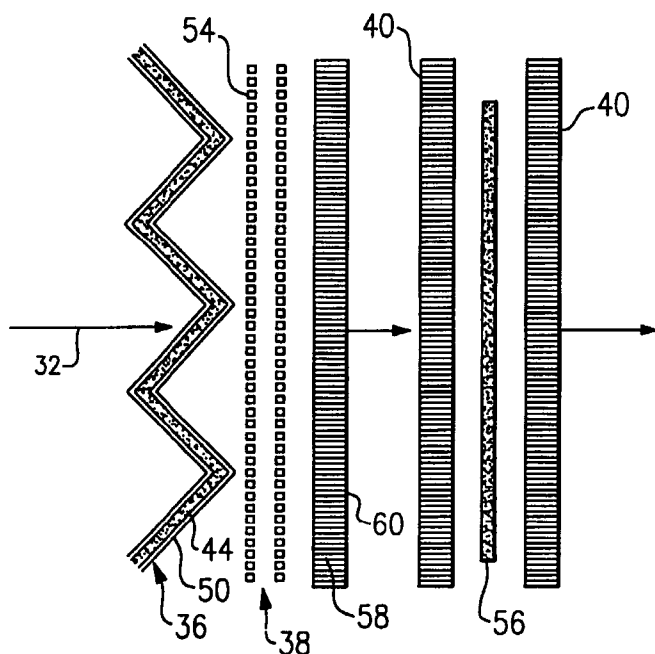
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(54) Title: **PHOTOCATALYST PROTECTION**



(57) Abstract: An air treatment system includes a filter and heating element, a plasma device, and a photocatalyst and UV light that cooperate to purify an air stream flowing through the air treatment system and protect the photocatalyst from passivating effects of certain contaminants. The air treatment system operates in two different modes. In the first mode, the air treatment system primarily draws air from and returns air to a space, and the heating element and plasma device are selectively shut off. In the second mode, the air treatment system regenerates the filter using the heating element to selectively heat the filter and release adsorbed contaminants. The plasma device is selectively turned on and chemically transforms the released contaminants into solid contaminant products. The solid contaminant products are deposited on a biased electrode of the plasma device. The UV light is turned off to ensure that the photocatalyst is inoperable during the release and transformation of the contaminants. Once deposited, the essentially immobile and inert solid

contaminant products are unlikely to damage the photocatalyst.



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