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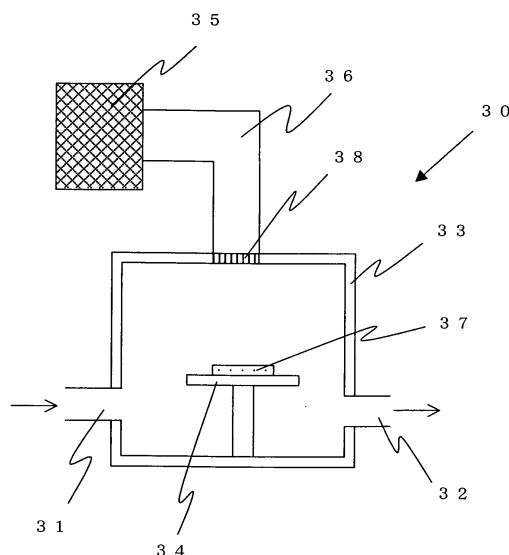
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(54) **Multilayer substrate, method for producing a multilayer substrate, and device**

(57) There is provided a multilayer substrate comprising, at least, a single crystal MgO substrate, an iridium (Ir) film heteroepitaxially grown on the MgO substrate, a diamond film vapor-deposited on the Ir film, wherein crystallinity of the Ir film is that a full width at half maximum (FWHM) of a diffracted intensity peak in $2\theta=46.5^\circ$ or $2\theta=47.3^\circ$ attributed to Ir (200) analyzed by X-ray diffraction method with a wavelength of $\lambda=1.54 \text{ \AA}$ is 0.40° or less. Thereby, there is provided a multilayer substrate that is delamination-proof at the respective interfaces between the MgO substrate and the Ir film and between the Ir film and the diamond film, and, particularly, that has a single crystal diamond film of a large area as a continuous film.

FIG. 5



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