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Ducharme et al.

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(54)	LIGHT SOURCE USING EMITTING
	PARTICLES TO PROVIDE VISIBLE LIGHT

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- (51) Int. Cl. H01J 1/62 (2006.01) H05B 33/00 (2006.01)

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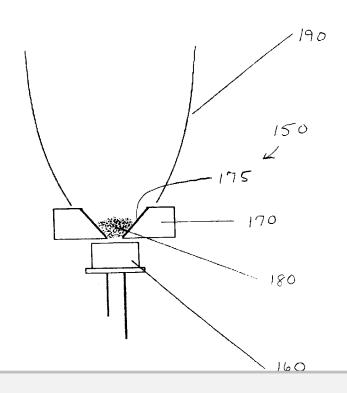
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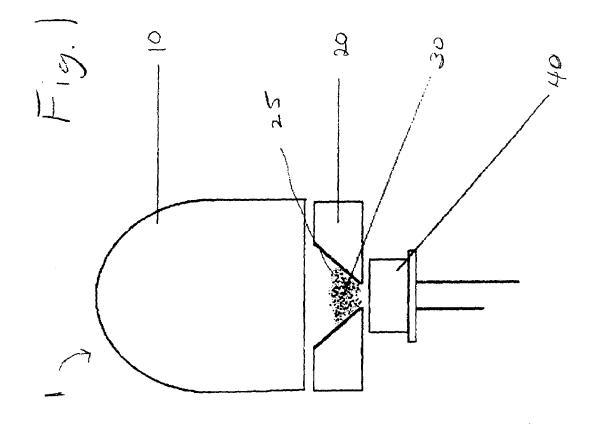
(57) ABSTRACT

Upconversion methods and devices that converts near-in-frared light to the visible spectrum using a rare-earth-doped crystalline host for use as general and decorative lighting. The pseudo-monochromatic output of the processes can be specified by altering the amount and type of rare-earth material used and by selection of an appropriate host. Using rare-earth materials such as ytterbium-erbium or ytterbium-thulium can produce red, green and blue emissions, where the additive mixture of these colors yields a high-quality white light. The materials can be adjusted to achieve white light with any color temperature and high color-rendering index (CRI) for any general and decorative lighting applications both indoors and outdoors.

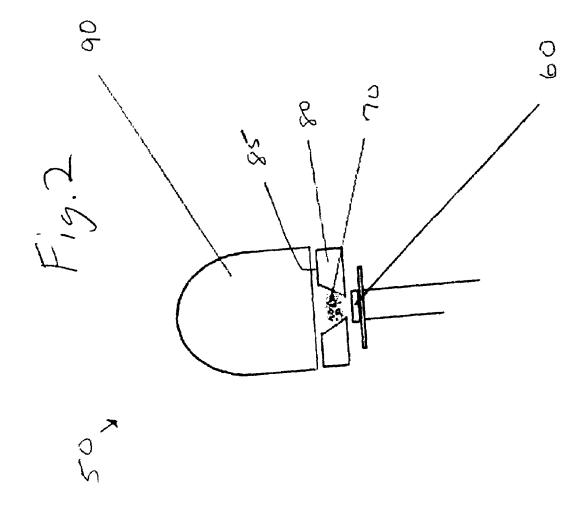
29 Claims, 11 Drawing Sheets

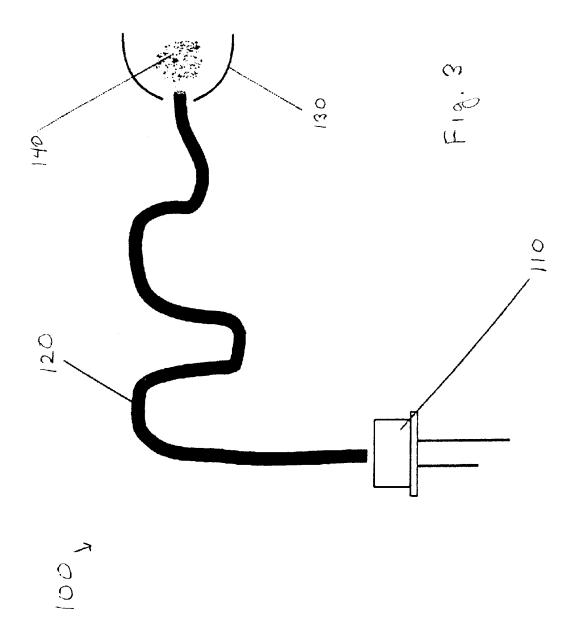


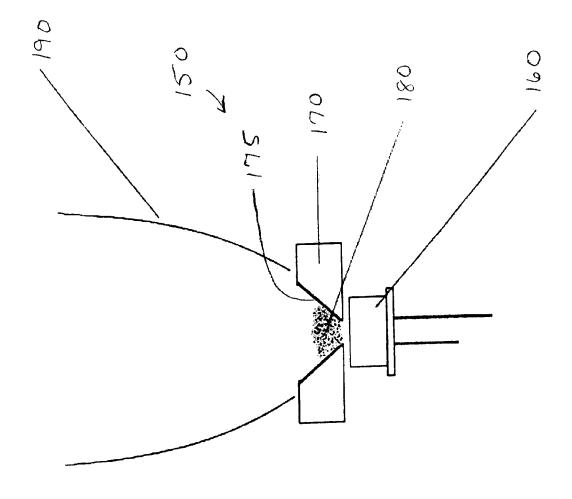


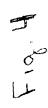












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