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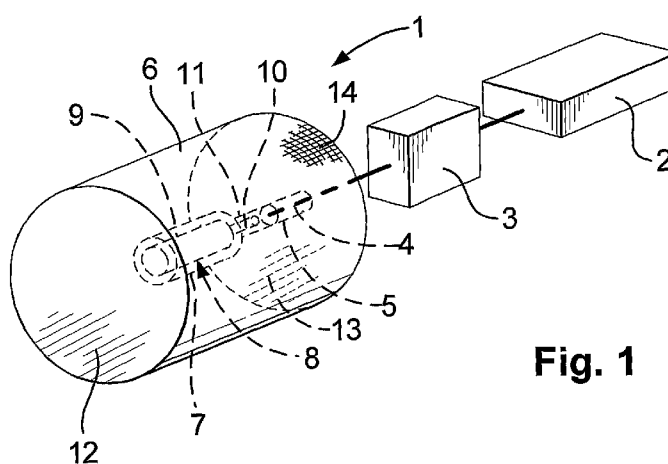
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(54) Title: MICROWAVE LIGHT SOURCE WITH SOLID DIELECTRIC WAVEGUIDE

**Fig. 1**

(57) **Abstract:** A lamp (1) comprises an oscillator and amplifier source (2) of microwave energy, typically operating at 2.45 or 5.8 GHz or other frequencies within an ISM band. The source passes the microwaves via a matching circuit (3) to an antenna (4) extending into a re-entrant (5) in a lucent waveguide (6). This is of quartz and has a central cavity (7) accommodating a bulb (8.) The bulb is a sealed tube (9) of quartz and contains a fill of noble gas and a microwave excitable material, which radiates visible light when excited by microwaves. The bulb has a stem (10) received in a stem bore (11) extending from the central cavity. The waveguide is transparent and light from the bulb can leave it in any direction, subject to any reflective surfaces. Microwaves cannot leave the waveguide, which is limited at its surfaces by a Faraday cage. Typically this comprises an ITO coating (12) on a front face of the waveguide, a light reflective coating (10), typically of silver with silicon monoxide coating (13) on a rear face and a wire mesh (14), which contacts both the ITO and light reflective coatings and is grounded, the wire mesh extending around sides of the waveguide between the front and back surfaces. Light can pass through the wire mesh for collection and use.