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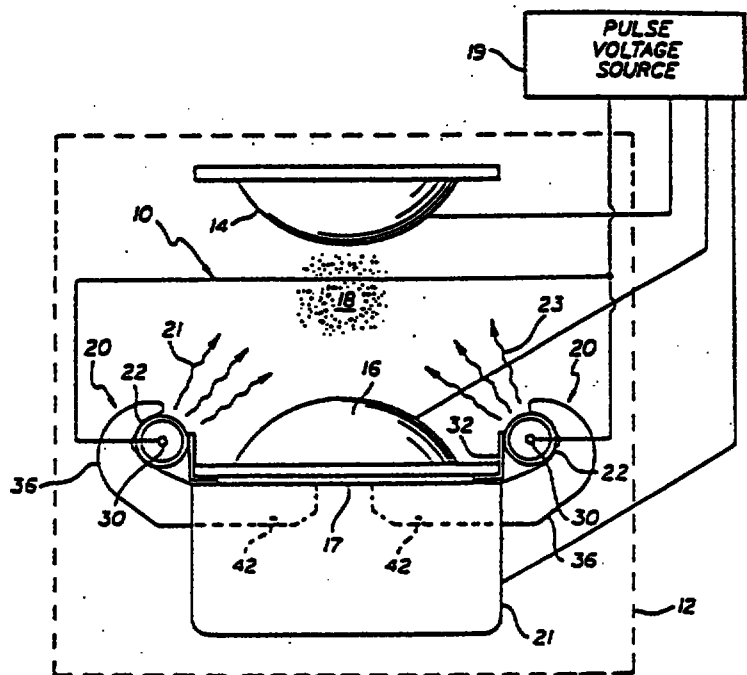
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(54) Title: PRE-IONIZER FOR A LASER

(57) Abstract

An anode (14) and a cathode (16) in a laser (10) are spaced in a first direction. A voltage difference between these members produces an electrical discharge which ionizes gases (18) in the laser (10) to react chemically and produce coherent radiation. First and second tubes (22) made from a dielectric material are spaced in the laser (10) in a second direction transverse (preferably perpendicular) to the first direction. The anode (14), the cathode (16) and the tubes (22) extend through the laser (10) in a direction transverse (preferably perpendicular) to the first and second directions. The tubes (22) are preferably at least a 99.9 % pure polycrystalline aluminum oxide ceramic with traces of other metallic elements than aluminum. Bushings (24) made from a material homogenous (preferably identical) to the tube material are integral with the tube (22) near the opposite tube ends. First electrical conductors (30) extend through the tubes (22). Second electrical conductors (32) (preferably resilient) contact (preferably line contact) the external tube surfaces to define capacitors with the first conductors (30) and the tube material. Positioning members (36) movably engage the tube external surfaces near the tube ends in co-operation with the resilient members establishing three (3) - line contacts with the tubes (22) for positioning the tubes (22) precisely in the cavity (1). When a voltage pulse is applied between the first conductor (30) inside each tube (22) and the conductors (32) on such tube (22), the resultant corona discharge from the external tube surface produces ultraviolet light which pre-ionizes the gases (18) in the cavity (12). This facilitates the ionization of the gases (18) in the cavity (12) when an anode (14)-cathode (16) electrical discharge is produced.



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