

(54) Title: POWER LASER SYSTEM

(57) Abstract

A housing in a laser system encloses a cathode and a displaced anode and gases ionizable and reactive chemically when a voltage pulse produces a cathode-anode electrical discharge. Moving air cools the components (capacitors, thyatron and triggering circuitry) for producing the voltage pulses. The laser gas temperature is continuously regulated at a particular value whether or not there is an electrical discharge. The concentration of one of the gases in the chamber is regulated to values alternately on opposite sides of an optimal value to provide an optimal energy in each chemical reaction of the gases. The gases are recirculated as by a fan driven on a shaft by a pair of motors and are filtered during such recirculation. The shaft speed is regulated at a particular value and the motor currents are regulated to be equal. Any ozone formed in a compartment holding the high voltage terminals is purged by passing a neutral gas (nitrogen) through the compartment to the atmosphere. The neutral gas is passed into the housing through a hose which also holds a high voltage wire in insulated relationship to other electrical components. A collar arrangement at one wire end provides for the introduction of voltage from the collar to the anode of the thyatron with the hose coupled to the housing and grounds the collar with the wire decoupled from the housing. The different high voltage components are sequentially tested for their operability by a system and method unique to this invention.

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