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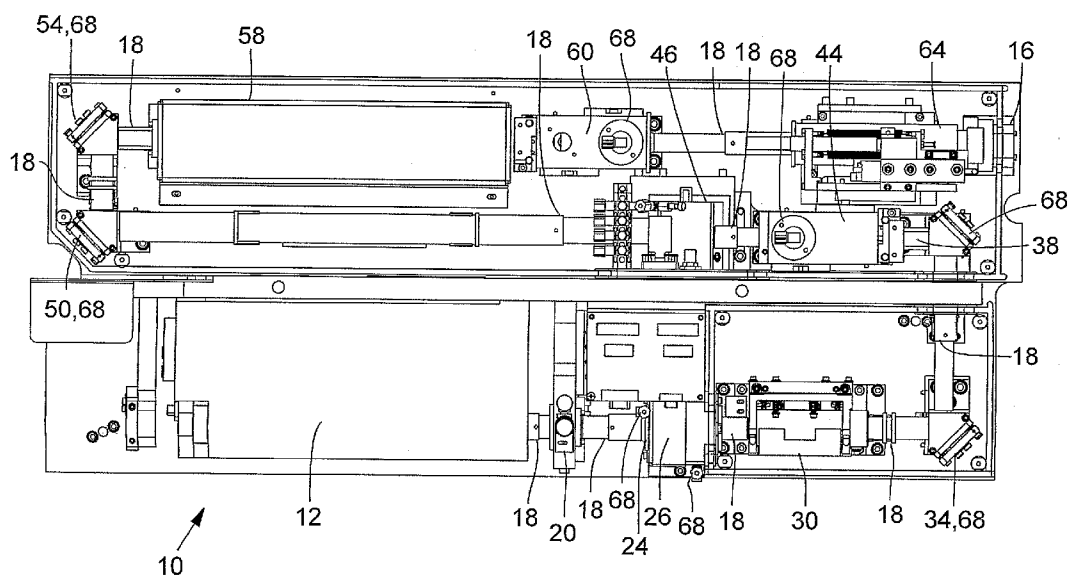
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(54) Title: OPTICAL COMPONENT CLEANLINESS AND DEBRIS MANAGEMENT IN LASER MICROMACHINING APPLICATIONS



(57) Abstract: Preferred embodiments of a purge gas port (74), laser beam attenuating input window (24), and laser shutter (20) constitute subsystems of a UV laser optical system (10) in which a laser beam is completely enclosed to reduce contamination of the optical system components (42, 60, 72). Purge gas is injected through multiple locations in a beam tube assembly (18) to ensure that the optical component surfaces (78) sensitive to contamination are in the flow path of the purge gas. The input window functions as a fixed level attenuator to limit photopolymerization of airborne molecules and particles. Periodically rotating optical elements asymmetrically in their holders (142) reduces burn damage to the optics.



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