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(54) Title: OPTICAL COUPLER

(57) Abstract

An optical fiber manifold is provided for coupling light from an illumination source (12) to a plurality of spaced, large diameter output fibers (22), or "light pipes", which are used for a variety of purposes, such as illumination pools, spas, hazardous material zones, jail cells and other applications where direct lighting is dangerous, difficult to maintain, or subject to vandalism. The manifold employs an illumination reflector(s) (14) which has been customized to maximize the efficiency of light transmission between the illumination source (12), such as an arc lamp, and the cores of the plurality of output fibers (22). A method of fabricating the customized illumination reflector includes mapping the radiation patterns of the particular illumination source to be utilized, creating a database of those radiation patterns, and utilizing the database to generate an optimal illumination reflector configuration. The computer-generated reflector will virtually always be a non-conic section, because the illumination source (12) is not ideal.

