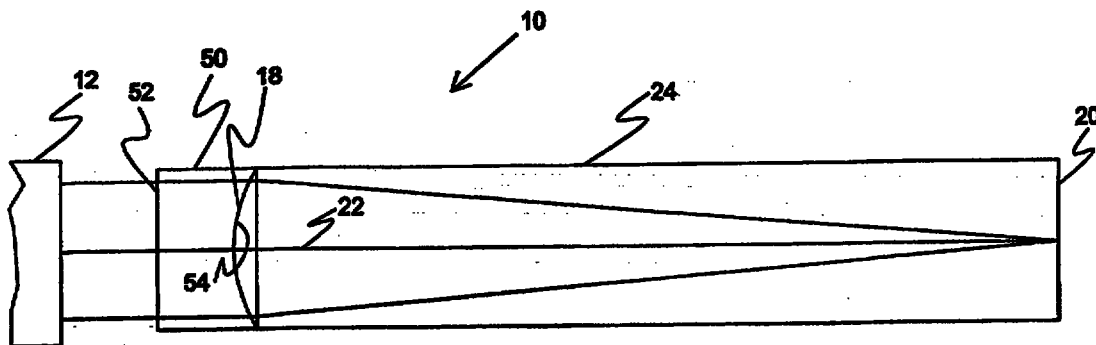


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(54) Title: AXIALLY-GRADED INDEX-BASED COUPLERS



(57) Abstract

An optical coupler is provided that comprises one lens component, comprising at least one axially-graded index of refraction element (24). When the optical coupler component includes one axially-graded index of refraction element (24), a homogenous "boot" element (50) is cemented on an entrance surface (18) to provide plano-plano coupling. When the optical coupler includes two or more axially-graded index of refraction elements, both entrance and exit surfaces are planar. The optical coupler component may be sized to provide focusing at its exit surface. The axially-graded index-based couplers of the present invention comprise a single component, thereby reducing the number of components and the concomitant complexity of the optical system. Further, many of these couplers can be fabricated with plano-plano entrance-exit surfaces, thereby obviating the need for forming curved focusing surfaces and thus avoiding the introduction of air spaces.