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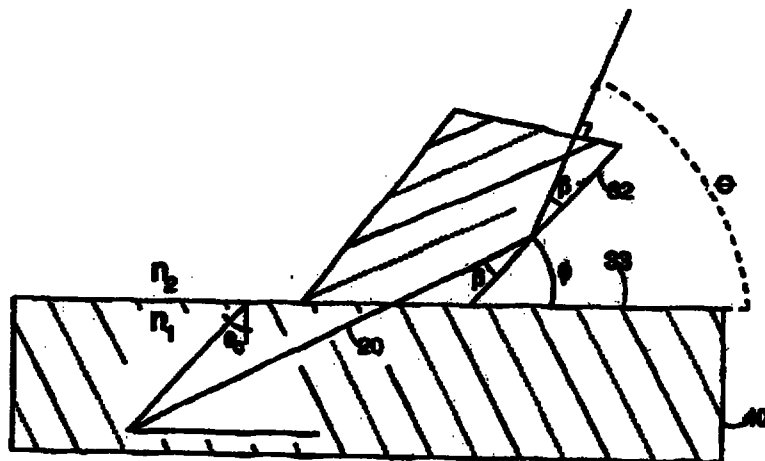
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(54) Title: LIGHT DIRECTING OPTICAL STRUCTURE



(57) Abstract

A light directing optical structure is formed of a light waveguide (40) preferably made of clear plastic; attached to or formed with the waveguide are a multiplicity of prisms (42). Each prism (42), due to its index of refraction, provides an aperture where light may escape the waveguide (40) rather than remain confined due to total internal refraction. The light escaping the waveguide (40) is reflected from a side face (32) of the prism (42), and redirected in a desired direction. The propagation paths within the waveguide (40) are such that the light emerging through the aperture is of only a fairly closely constrained range of angles; as a result the light that is redirected by the side face of the prism is of a similarly constrained range of angles. The geometry of the prism (42) can be optimized to direct the output light perpendicular to the plane (33) of the waveguide (40), or at a desired angle other than perpendicular. The optical structure can receive a light input along an edge, or along several edges, and its output beam is perpendicular to the structure or at some desired angle other than perpendicular. There is no restriction on the distribution and uniformity of the light input, yet the output is a directed and intensity controlled light source. Configurations are disclosed adapting the structure to several different possible light distribution patterns.