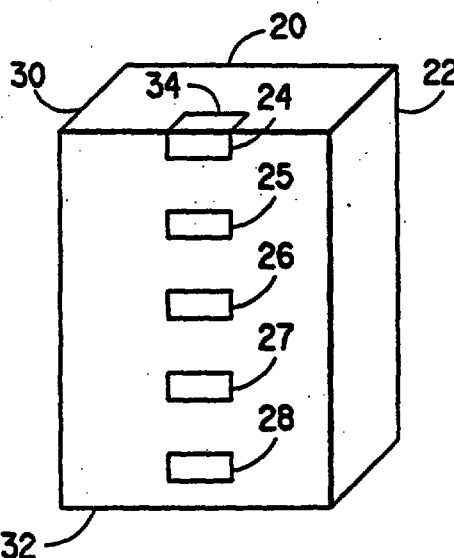


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(54) Title: OPTICAL ARTICLES FOR WAVELENGTH CONVERSION AND THEIR MANUFACTURE AND USE



This Sheet Has Been Replaced



(57) Abstract.

Articles and process for wavelength conversion are disclosed which use a series of aligned sections of optical materials which are suitably balanced over the series with regard to the section length and the section Δk (i.e. the difference between the sum of the propagation constants for the incident waves and the sum of the propagation constants for the waves generated). The sections are selected such that the sum for the series of the product of the length of each section with the Δk is equal to about zero, and the length of each section is less than its coherence length. Embodiments are disclosed wherein at least one of the optical materials is optically nonlinear and/or wherein a layer of nonlinear optical material is provided adjacent to the series of sections. Also disclosed is a process for preparing a channel waveguide for wavelength conversion systems wherein areas along a portion of a crystal substrate surface used for forming the desired channel are alternately masked and unmasked during cation replacement by immersion in a molten salt.