FIBER OPTIC DEVICES HAVING VOLUME
BRAGG GRATINGS ELEMENTS

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References Cited

U.S. PATENT DOCUMENTS
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ABSTRACT

Apparatus and methods for controlling the spectral shape of a
Bragg grating element (VGB) filter are disclosed. An optical
system can be adapted to deliver a recording beam to the
front focal plane of a lens. The recording beam may cause to
be formed, in the front focal plane of the lens, an optical
distribution that represents the desired filter response of the
VGB element. A recording medium sample may be placed in
the back focal plane of the same lens. The lens creates a true
Fourier transform of the distribution in the optical plane
directly on the recording medium. Via coherent interference
with the plane reference wave, both the amplitude and the
phase of the Fourier transform are transferred to the ampli-
tude and phase envelope of the VGB imprinted on the record-
ing material. A mask representing the desired filter shape may
be placed in the front focal plane of the lens. The recording
beam may be shone through the mask, such that a masked
recording beam exits the mask in the front focal plane of the
lens. The masked recording beam may represent the desired
filter response of the VGB element.