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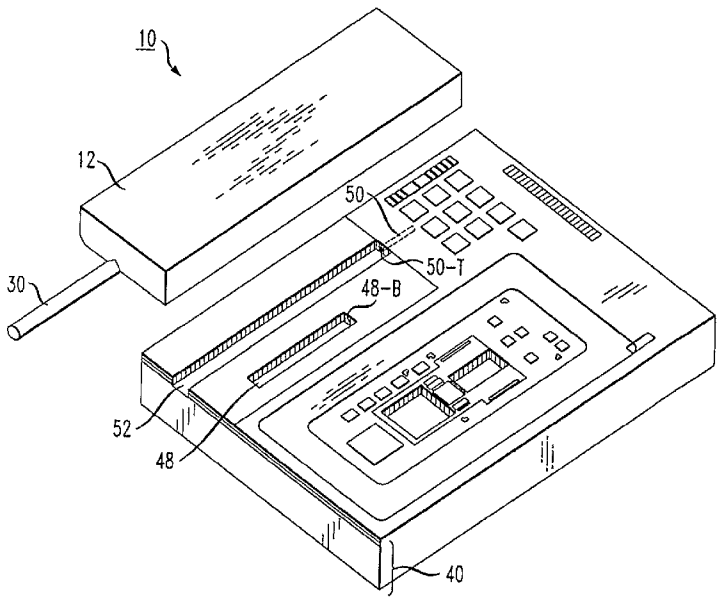
(54) **Title:** PASSIVE FIBER ALIGNMENT ARRANGEMENT FOR COUPLING TO NANO-TAPER OPTICAL WAVEGUIDES



(57) **Abstract:** An arrangement for providing passive alignment between an optical fiber and the "tip" of a nanotaper coupling waveguide (the nanotaper formed within the SOI layer of an SOI-based optoelectronic arrangement). The arrangement includes a separate fiber carrier support element, including a longitudinal V-groove for supporting the fiber and an alignment feature formed parallel thereto. The SOI structure is formed to include an associated alignment slot, so that as the fiber carrier is positioned over and attached to the SOI structure, the alignment feature and alignment slot will mate together and provide passive alignment of the optical fiber to the nanotaper waveguide tip.

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