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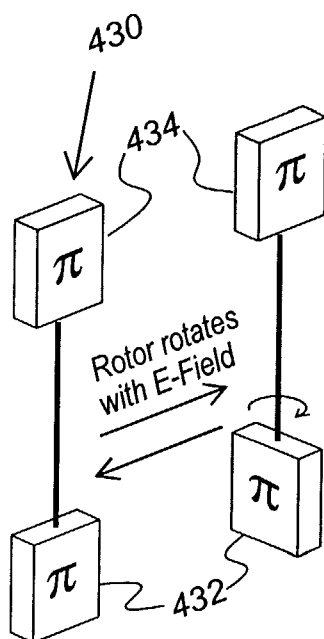
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(54) Title: MOLECULAR MECHANICAL DEVICES WITH A BAND GAP CHANGE ACTIVATED BY AN ELECTRIC FIELD FOR OPTICAL SWITCHING APPLICATIONS



(57) Abstract: Molecular systems (430, 630, 630', 730) are provided for electric field activated switches, such as optical switches (101, 205, 207, 209). The molecular system (430, 630, 630', 730) has an electric field induced band gap change that occurs via one of the following mechanisms: (1) molecular conformation change; (2) change of extended conjugation via chemical bonding change to change the band gap; or (3) molecular folding or stretching. Nanometer-scale reversible optical switches are thus provided that can be assembled easily to make a variety of optical devices, including optical displays (100, 200, 300).

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