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(54) **Title:** SENSING SYSTEMS

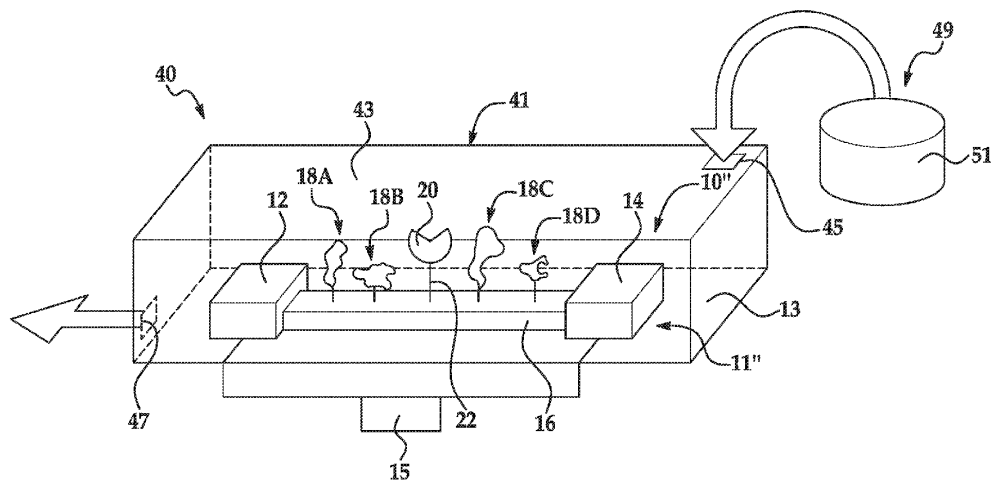


FIG. 4

(57) **Abstract:** A sensing system includes a charge sensor including two electrodes and an electrically conductive channel connecting the two electrodes. The sensing system also includes a charged molecule attached to the electrically conductive channel. The charged molecule includes a recognition site to reversibly bind a label of a labeled nucleotide; has an unbound favored conformation associated with an unbound charge configuration; and has a favored conformation associated with a charge configuration when the recognition site is bound to the label. The charge configuration is different from the unbound charge configuration. The sensing system further includes a polymerase attached to the electrically conductive channel or to the charged molecule.

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