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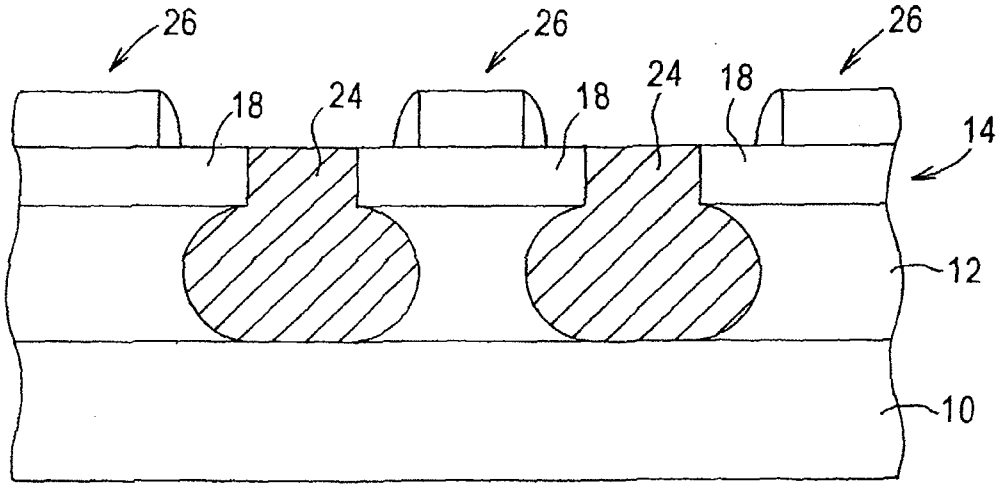
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(54) Title: A SILICON-ON-INSULATOR DEVICE WITH STRAINED DEVICE FILM AND METHOD FOR MAKING THE SAME WITH PARTIAL REPLACEMENT OF ISOLATION OXIDE



(57) Abstract: A silicon-on-insulator (SOI) device with a strained silicon film (14) has a substrate (10), and a buried oxide layer (12) on the substrate (10). Silicon islands (18) are formed on the buried oxide layer (12), the silicon islands (18) being separated from each other by gaps (16). The buried oxide layer (12) has recesses (22) directly under the gaps (16). A material (24) fills the recesses and the gaps (16), this material (24) being different from the material forming the buried oxide layer (12). The material (24) induces a net amount of strain in the silicon islands (18), thereby modifying the electrical properties of carriers in the silicon film (14) and improving device performance.

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