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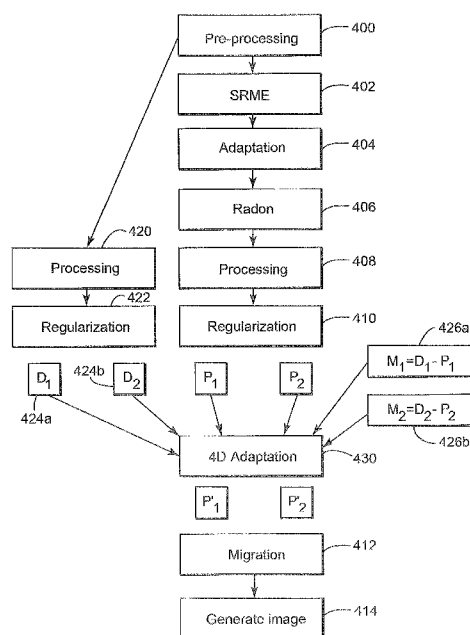
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[Continued on next page]

(54) **Title:** DEVICE AND METHOD FOR OPTIMIZATION OF 4D AND 3D SEISMIC DATA

FIG. 4



(57) **Abstract:** A method and apparatus for noise attenuation. The method includes receiving seismic data associated with at least two vintages (d_i, d_j) collected for a same subsurface, wherein the first and second vintages (d_i, d_j) are taken at different times; calculating a set of filters (f_i, f_j) that minimizes an energy function (E), wherein the energy function (E) includes a term representing a 4D difference between the first and second vintages (d_i, d_j); calculating primaries (p_i, p_j) corresponding to the first and second vintages (d_i, d_j) based on the set of (f_i, f_j); and calculating a 4D difference (Δ_{ij}) based on the primaries (p_i, p_j). The 4D difference (Δ_{ij}) is minimized.

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

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