



[54] METHOD FOR THE TEMPORAL FILTERING OF THE NOISE IN AN IMAGE OF A SEQUENCE OF DIGITAL IMAGES, AND DEVICE FOR CARRYING OUT THE METHOD

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[30] Foreign Application Priority Data

Jun. 30, 1995 [FR] France ..... 95 07889

[51] Int. Cl.<sup>6</sup> ..... G06K 9/40

[52] U.S. Cl. .... 382/260; 382/265; 382/275; 382/132

[58] Field of Search ..... 382/128, 132, 382/254, 260, 265, 275; 378/98.2, 156

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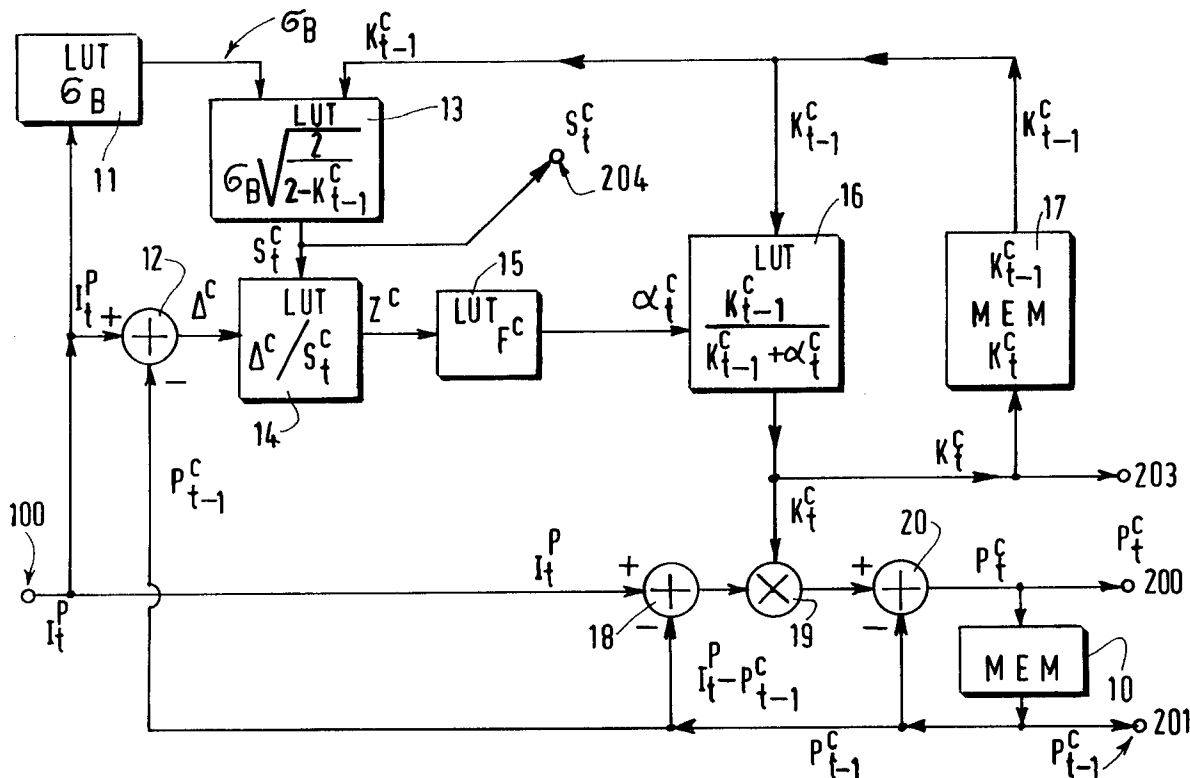
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[57] ABSTRACT

A method for the temporal filtering of a sequence of digitized noisy images includes the evaluation of an anti-causal filtered sample (P\_t^A) in order to reconstruct a present noisy sample (I\_t^P) of a given pixel in a present image by an anti-causal linear combination of a causal filtered sample (P\_t^C) obtained by preliminary causal linear temporal filtering in association with coefficients (b\_t^C) and an anti-causal noisy sample (I\_{t+1}^A). To the samples (P\_t^C, I\_{t+1}^A) there are assigned weights calculated as functions of a causal gain factor (K\_t^C), equal to the inverse of the sum of the coefficients of the causal linear filtering, and an anti-causal continuity coefficient (alpha\_t^A), the weight of the anti-causal sample (I\_{t+1}^A) being equal to the probability of intensity continuity between the anti-causal sample (I\_{t+1}^A) and a previous filtered sample (P\_t^C, P\_{t-1}^C) in the sequence. A device for carrying out the method is configured for calculating the anti-causal linear combination.

20 Claims, 7 Drawing Sheets



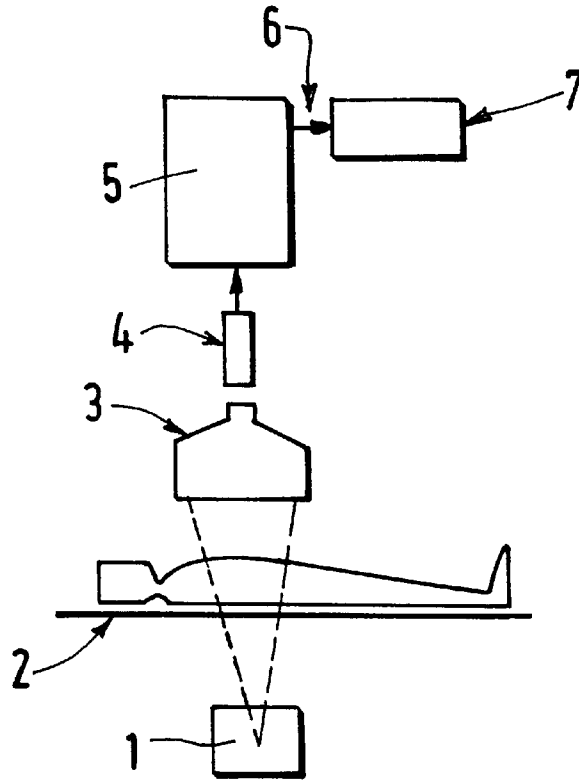


FIG. 1

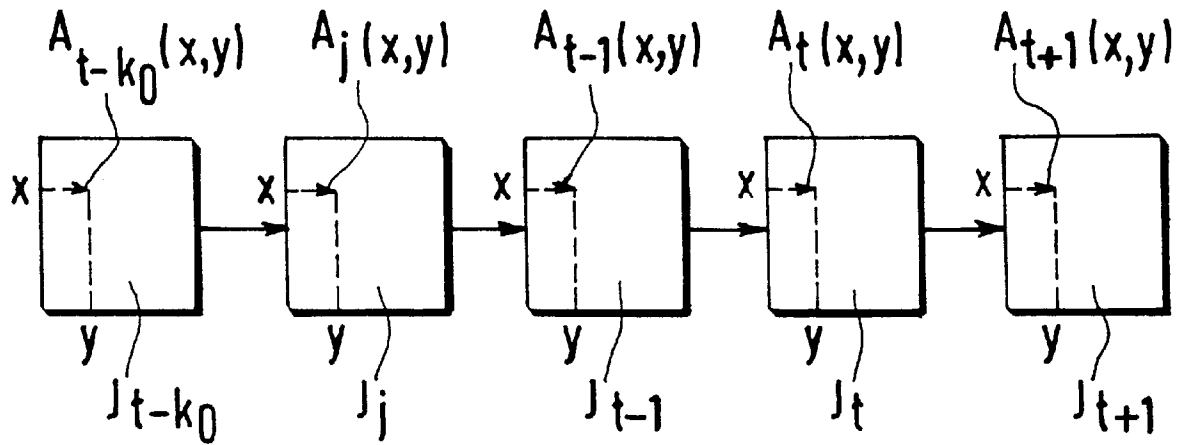


FIG. 2

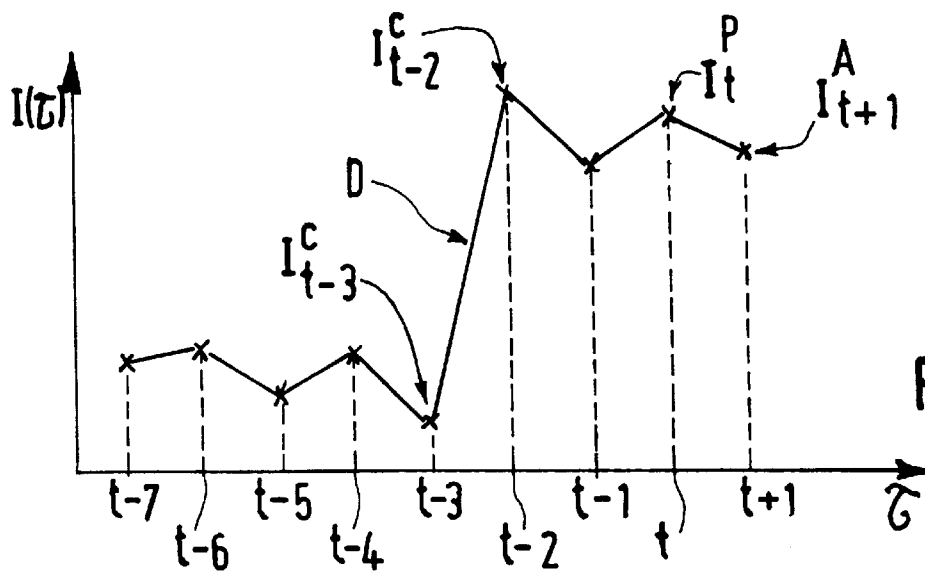


FIG. 3A

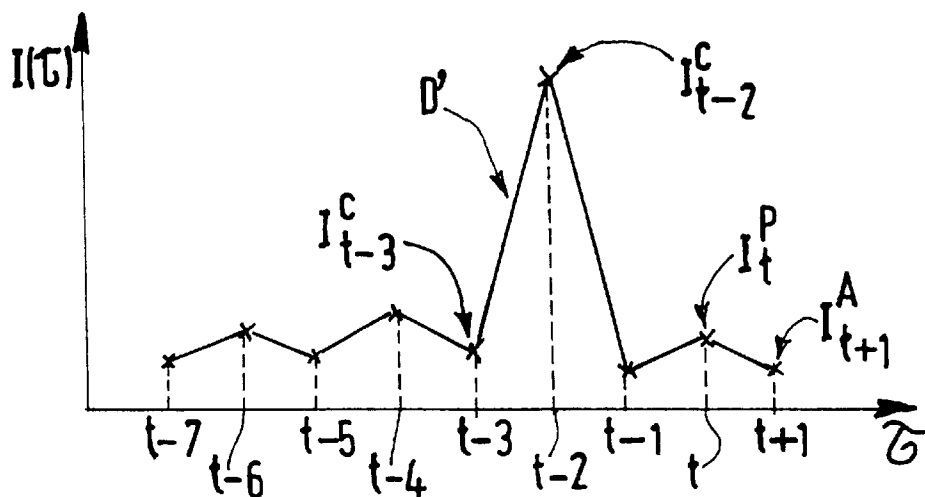


FIG. 3B

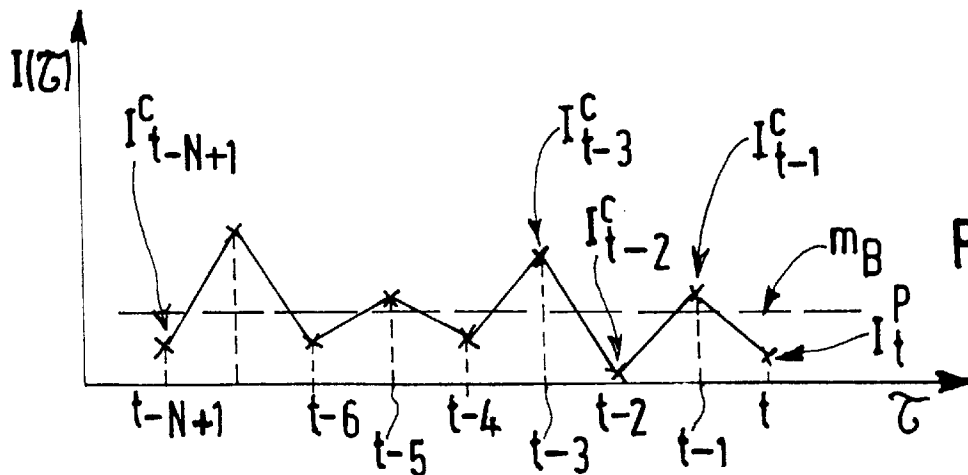


FIG. 3C

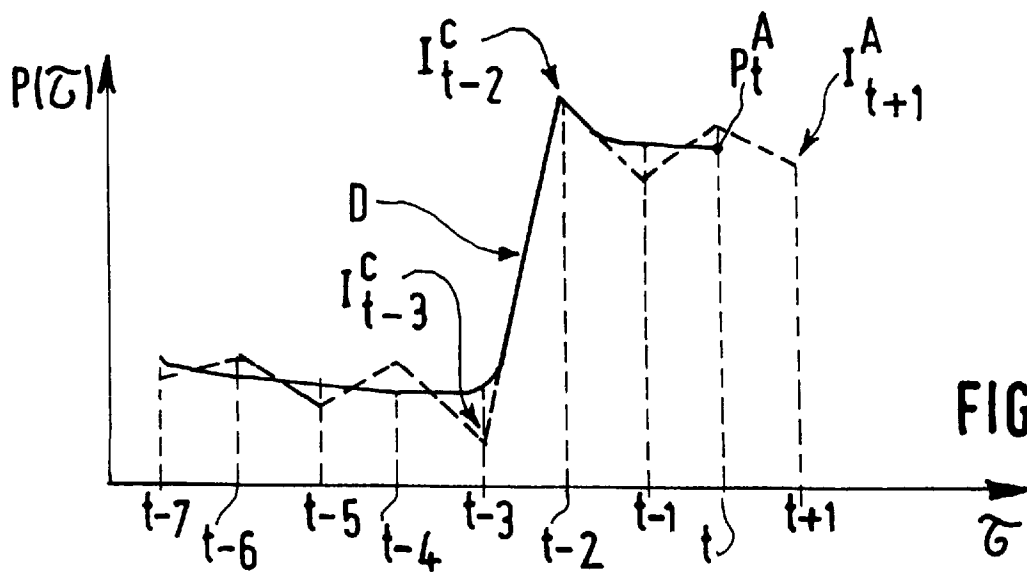


FIG. 4A

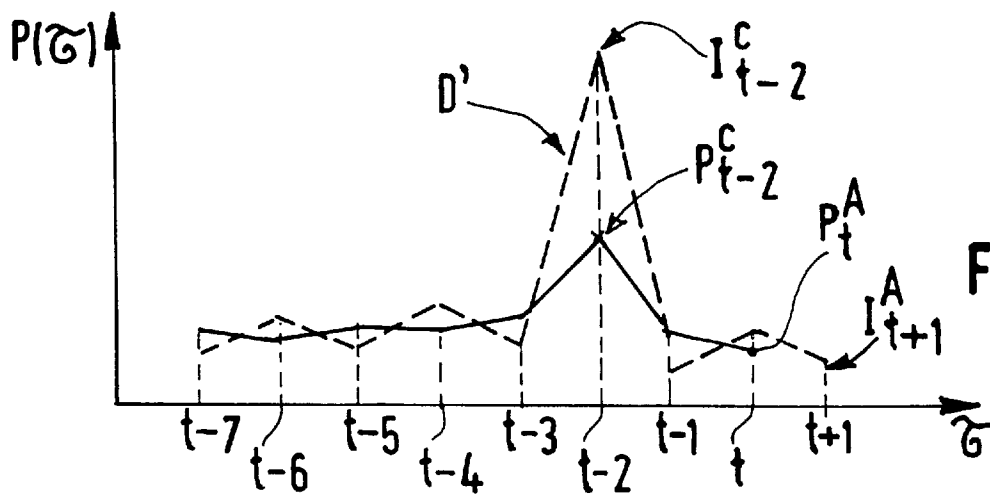


FIG. 4B

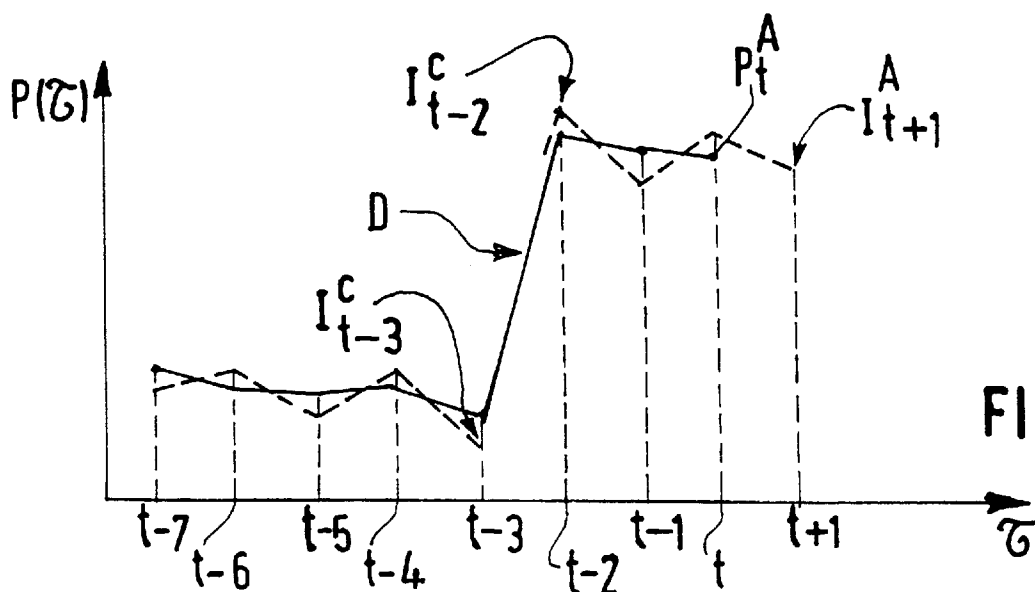


FIG. 4C

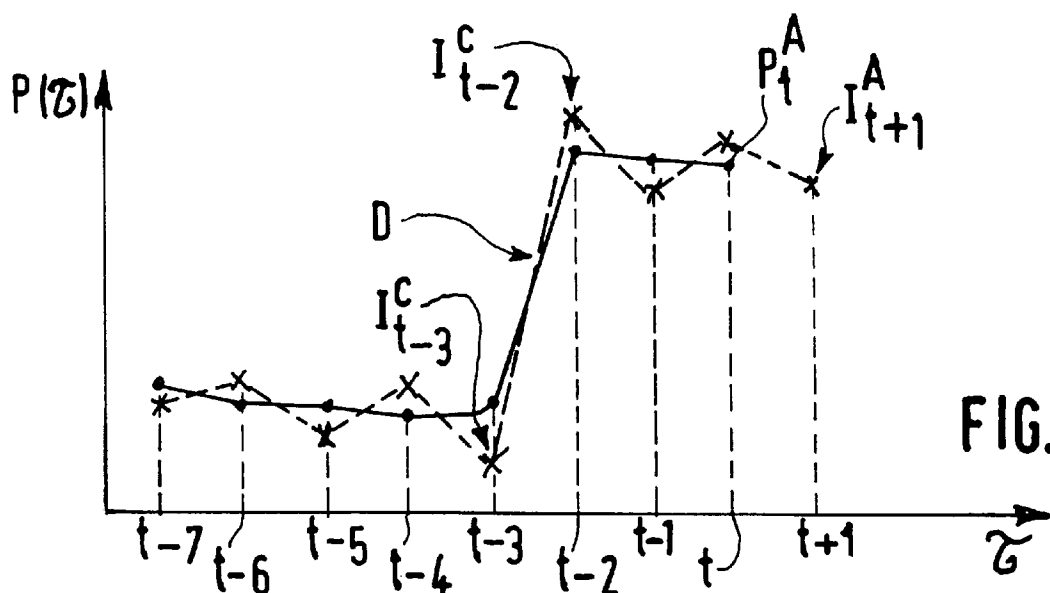


FIG. 5A

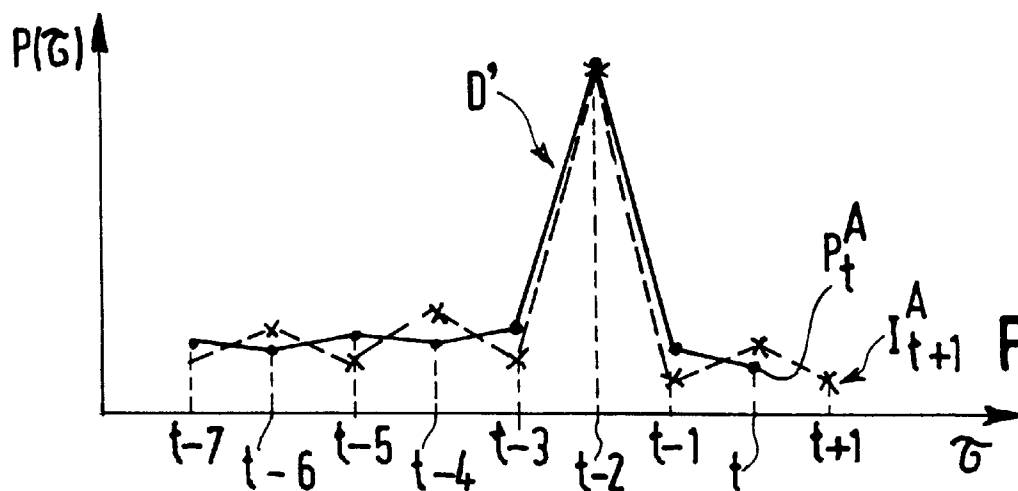


FIG. 5B

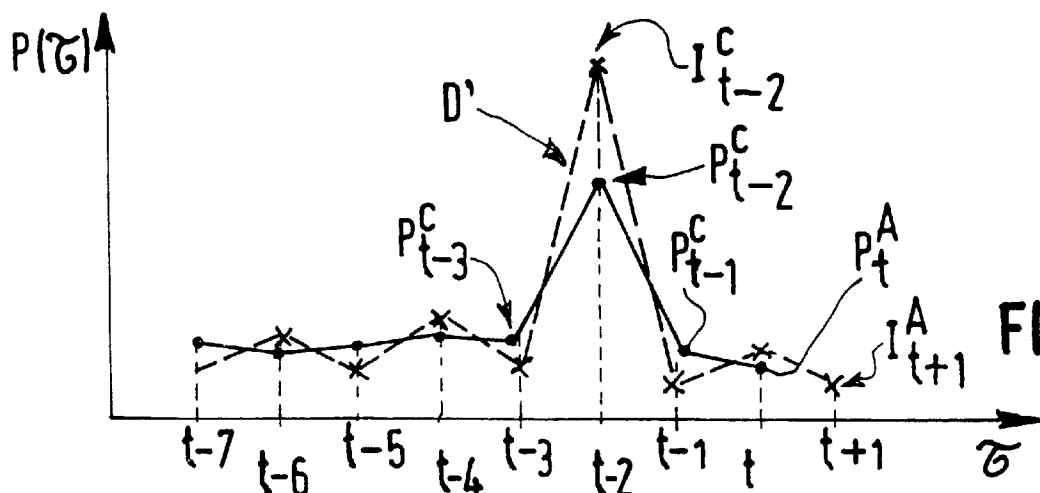


FIG. 5C

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