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Brady et al.

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[54] **METHOD AND APPARATUS FOR MACHINE VISION CLASSIFICATION AND TRACKING**

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Related U.S. Application Data

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[51] Int. Cl.^{6} **G06K 9/00**; G06K 9/48; H04N 9/47; G08G 1/054

[52] U.S. Cl. **382/103**; 382/104; 382/199; 348/148; 395/905; 340/937

[58] Field of Search 382/103, 104, 382/160, 199; 348/148; 395/905, 21; 340/937

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[57] **ABSTRACT**

A method and apparatus for classification and tracking objects in three-dimensional space is described. A machine vision system acquires images from roadway scenes and processes the images by analyzing the intensities of edge elements within the image. The system then applies fuzzy set theory to the location and angles of each pixel after the pixel intensities have been characterized by vectors. A neural network interprets the data created by the fuzzy set operators and classifies objects within the roadway scene. The system can also track objects within the roadway scene, such as vehicles, by forecasting potential track regions and then calculating match scores for each potential track region based on how well the edge elements from the target track regions match those from the source region as weighted by the extent the edge elements have moved.

17 Claims, 14 Drawing Sheets
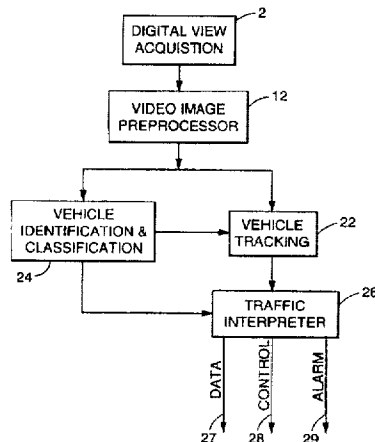
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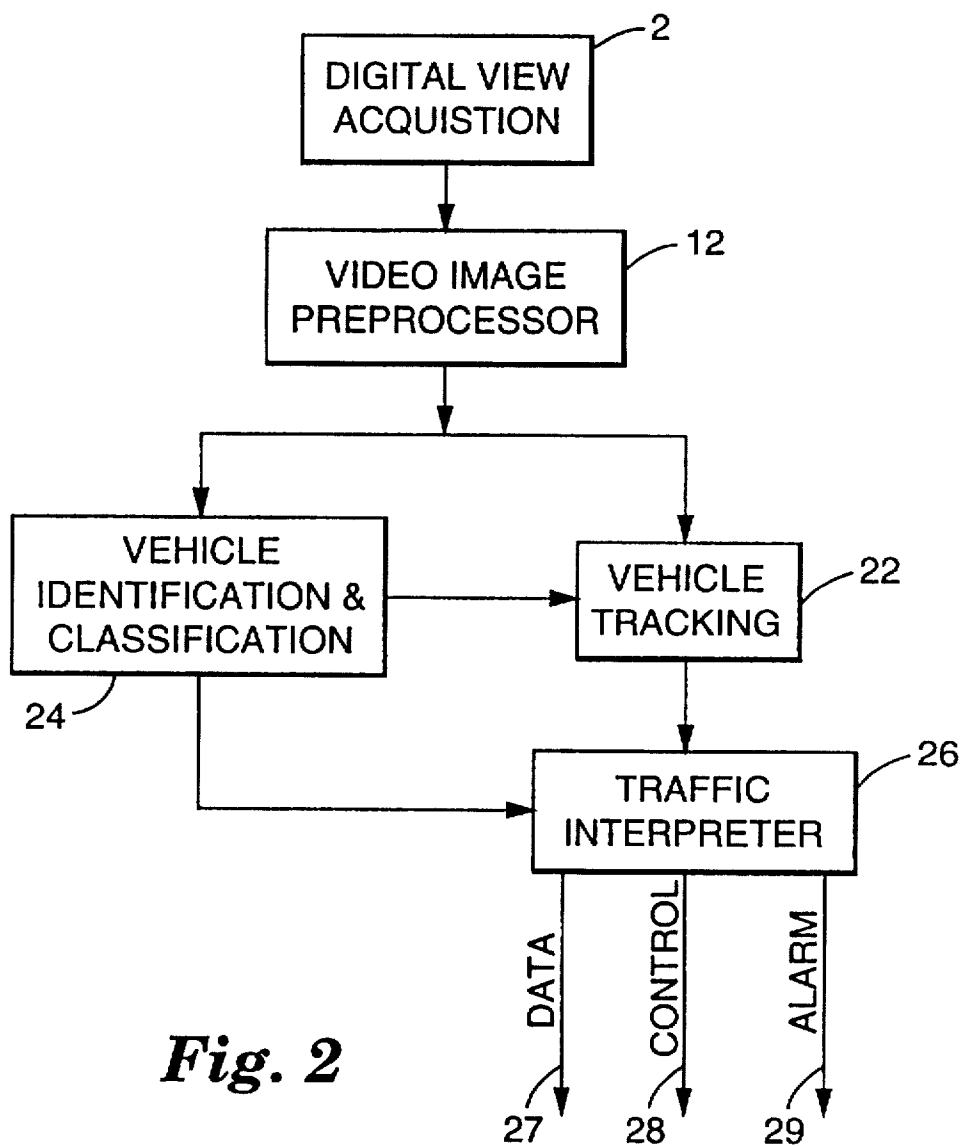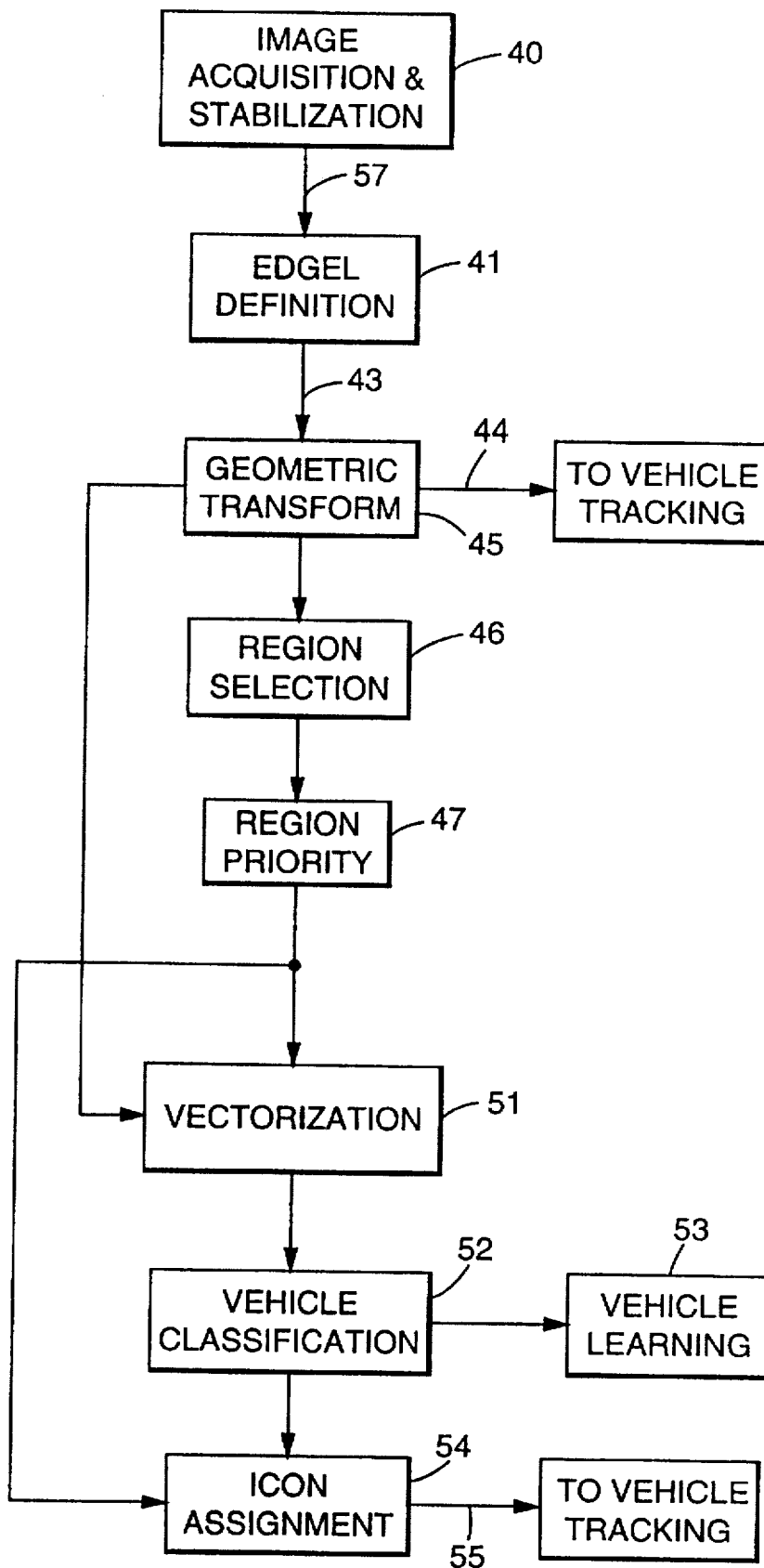|			
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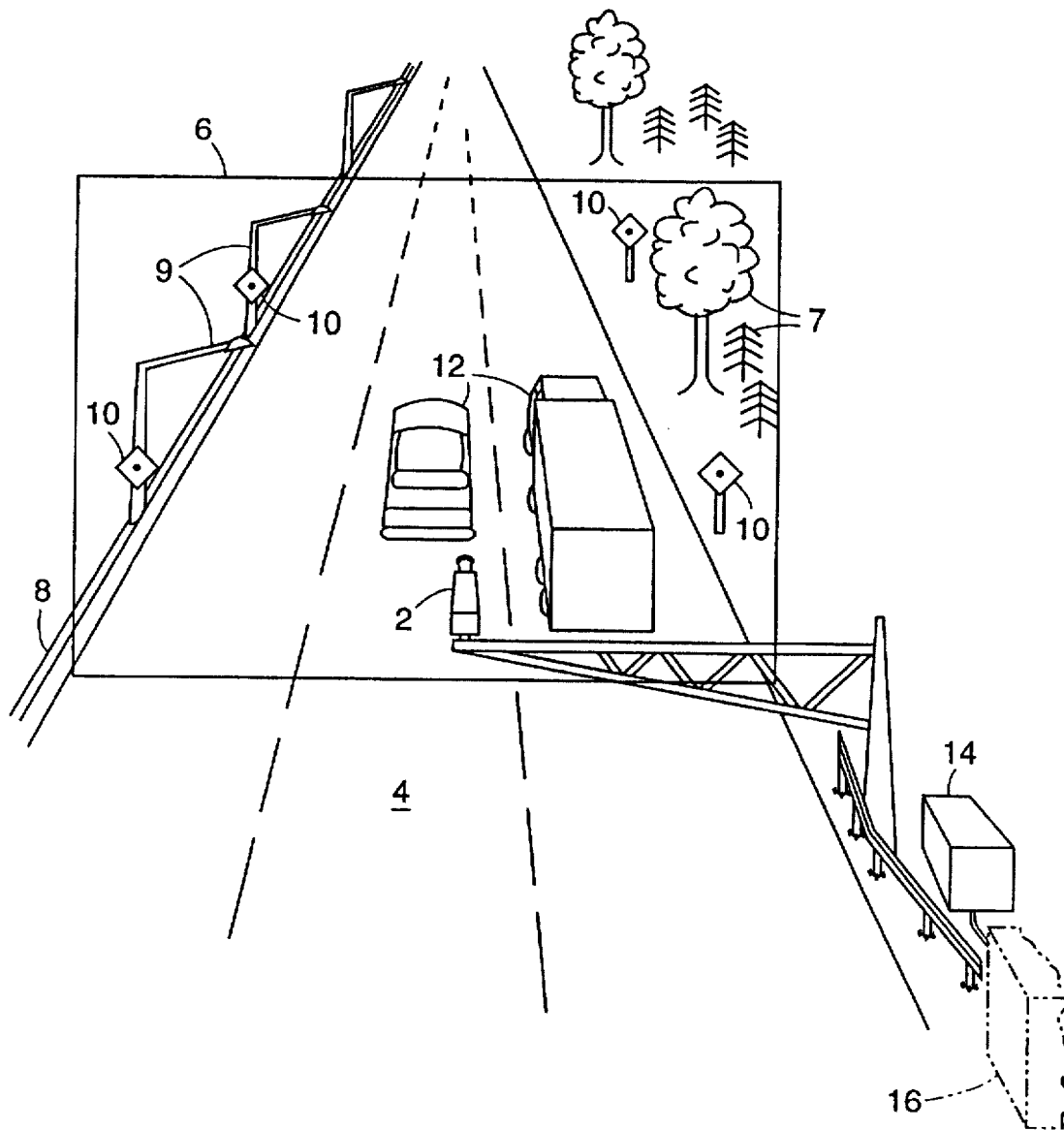
Fig. 1

Fig. 2

Fig. 3

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