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(54) Title : METHOD FOR SIMULTANEOUSLY LOCATING AND MAPPING VIA RESILIENT NON-LINEAR FILTERING

(54) Titre : PROCEDE DE LOCALISATION ET DE CARTOGRAPHIE SIMULTANÉES PAR FILTRAGE NON LINEAIRE ELASTIQUE

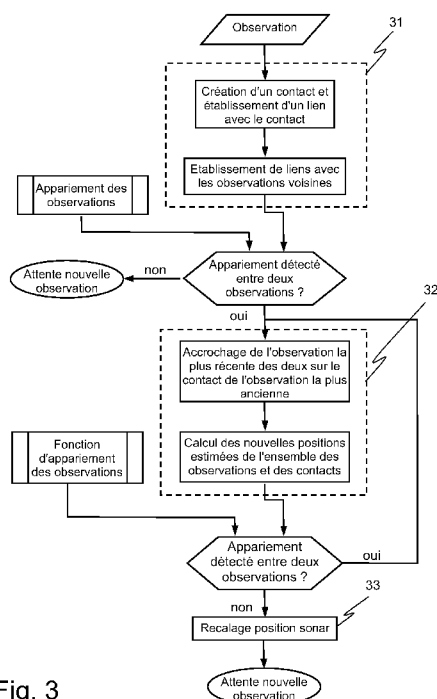


Fig. 3

(57) Abstract : The method according to the invention consists of making observations, by means of an underwater vehicle moving above a given area of the seabed, from which the raised features and objects on the seabed are estimated. Said observations are associated with imaginary objects, which are linked to one another via imaginary resilient links, so as to comprise an imaginary resilient network. The network is in equilibrium as long as no action is performed on any of the imaginary objects comprising the network. The objects then occupy fixed positions, positions which are assigned to the corresponding observations. On the other hand, when two presumed observations corresponding to a single object are merged into a single observation, the two corresponding imaginary objects are matched to one another. Said matching induces the appearance of stress in the imaginary resilient network. This stress, which is transmitted via the imaginary resilient links, is resolved by means of modifying the positions of the imaginary objects of the network, the modifying positions being assigned to the corresponding observations. Consequently, when the estimated position of an object which was the subject of two merged observations is corrected, the measurement of the estimated position of each of the objects which gave rise to an observation represented in the imaginary resilient network advantageously benefits from said correction.

(57) Abrégé :

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