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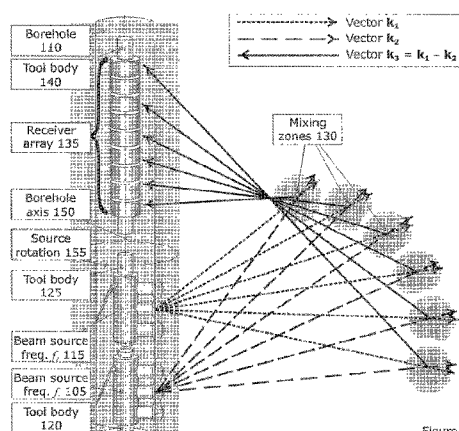


Figure 1

(57) Abstract: A method and system for investigating rock formations outside a borehole are provided. The method includes generating a first acoustic wave at a first frequency by a first acoustic source; and generating a second acoustic wave at a second frequency by a second acoustic source. The first and the second acoustic sources are arranged within a localized area of the borehole. The first and the second acoustic waves intersect in an intersection volume outside the borehole. The method further includes receiving a third acoustic wave at a third frequency, the third shear acoustic wave returning to the borehole due to a non-linear mixing process in a non-linear mixing zone within the intersection volume at a receiver arranged in the borehole. The third frequency is equal to a difference between the first frequency and the second frequency.