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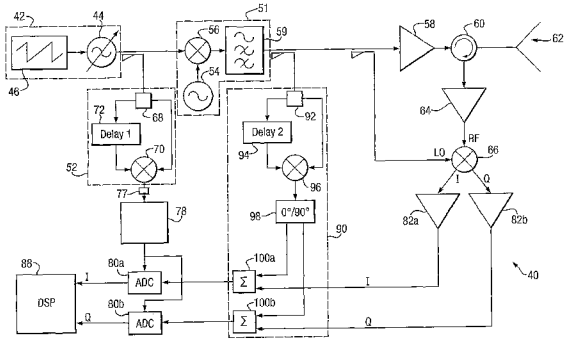
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(54) Title: COHERENT FREQUENCY MODULATED CONTINUOUS WAVE RADAR



(57) Abstract: A frequency modulated continuous wave (FMCW) radar (40) is described. The radar (40) includes a first discriminator (52) for receiving a portion of the swept frequency signal generated by a frequency sweep generator (42) and for producing a reference difference-frequency signal of frequency equal to the difference between the frequency of the swept frequency signal and the frequency of a- time displaced swept frequency signal derived from the swept frequency signal. An analogue-to-digital converter (ADC 80) is provided for sampling the target difference-frequency signal at a rate derived from the frequency of the reference difference-frequency signal. A processor (88) for determining frequency components of the digitised target difference-frequency signal is arranged to determine for at least one frequency component of the digitised target difference-frequency signal any phase difference between frequency sweeps of said swept frequency signal. The radar may be used for detecting foreign object debris (FOD) on runway surfaces and the like. A corresponding method of operating an FMCW radar is also described.

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