CLAIMS:

[Claim 1] A resistance wire abnormality detection device for detecting abnormality in a resistance wire having a plurality of bends, the resistance wire abnormality detection device comprising:

a pulse generator which inputs a pulse signal to the resistance wire;

a directional coupler which is provided between connection lines connecting between the resistance wire and the pulse generator and extracts, from the plurality of bends of the resistance wire, a composite reflected wave in which a plurality of individual reflected waves of the pulse signal inputted from the pulse generator to the resistance wire are superimposed;

a low-pass filter which is connected to the directional coupler and removes high-frequency noise from the composite reflected wave inputted from the directional coupler to output a reflected wave for detection;

a detection unit which is connected to the low-pass filter and processes the reflected wave for detection inputted from the low-pass filter to detect an abnormality in the resistance wire; and

wherein the detection unit comprises:

a storage part which stores waveform information of a reference reflected wave inputted from the directional coupler when the pulse signal is inputted to the resistance wire that has a same shape as the resistance wire and does not have an abnormality; and

a calculation part which detects an abnormality in the resistance wire by comparing waveform information of the reflected wave for detection inputted from the directional coupler when the pulse signal is inputted to the resistance wire, with waveform information of the reference reflected wave stored in the storage part,

wherein the calculation part detects an abnormality in the resistance wire when a difference between a magnitude of the reflected wave for detection and a magnitude of the reference reflected wave exceeds a first range that is predetermined,

detects a complete disconnection in the resistance wire when the difference between the magnitude of the reflected wave for detection and the magnitude of the reference reflected wave exceeds a second range which is larger than the first range, and

detects a partial disconnection in the resistance wire when the difference between the magnitude of the reflected wave for detection and the magnitude of the reference reflected wave exceeds the first range but is smaller than the second range.