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(54) **Title:** METHOD AND SYSTEM FOR DETERMINING A CONDITION OF AN AIRFLOW DEVICE

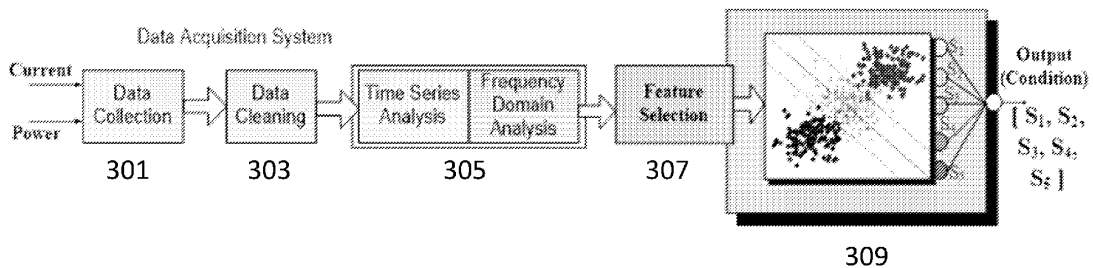


Fig. 3

(57) **Abstract:** A method of determining a condition of an airflow device is disclosed herein. In a specific embodiment, the method comprises receiving electrical signal data representing an operating state of the airflow device; decomposing the electrical signal data into a plurality of first decomposed components of the electrical signal data representing corresponding intrinsic features of the electrical signal data; filtering each of the plurality of first decomposed components using a neural-network based filter to produce reconstructed electrical signal data; decomposing the reconstructed electrical signal data into a plurality of second decomposed components of the reconstructed electrical signal data representing corresponding optimum intrinsic features, the optimum intrinsic features being more relevant to identifying the condition than the intrinsic features; identifying at least one most relevant intrinsic feature for determining the condition of the airflow device from at least the optimum intrinsic features; and selecting at least one of the second decomposed components corresponding to the at least one most relevant intrinsic feature as an input to a condition classification model to determine the condition of the airflow device. A system for determining a condition of an airflow device is also disclosed herein.

[Continued on next page]

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