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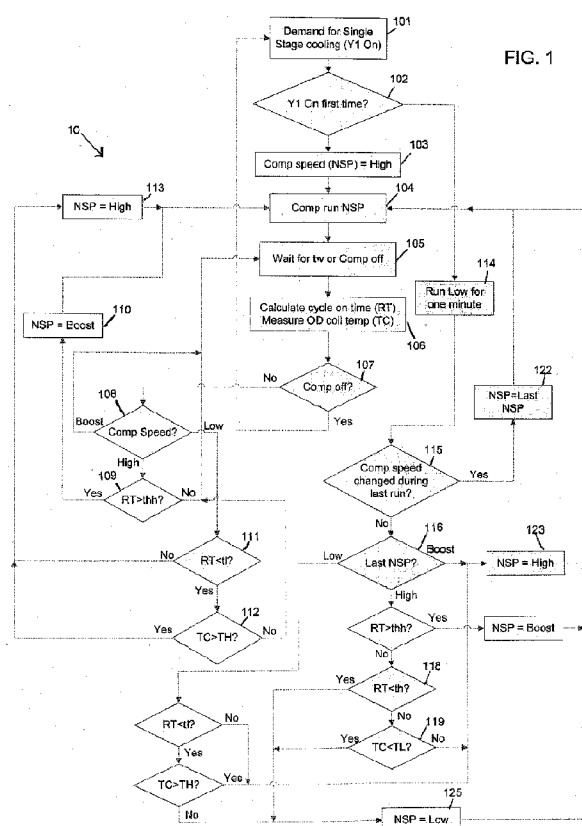
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(54) Title: HVAC CONTROL USING DISCRETE-SPEED THERMOSTATS AND RUN TIMES



(57) Abstract: Methods of controlling air conditioning and HVAC units using a thermostat for a discrete- speed unit that include changing speed based on how long the unit operates at a particular speed. Speed may be increased if a unit operates for longer than a predetermined time at a particular speed, and speed may be reduced if the unit operated for less than a specific amount of time during the prior run. In different embodiments, single-stage thermostats may control units that operate at three speeds, and two-stage thermostats may control units that operate at five speeds. In addition, in some embodiments, outdoor coil temperature may be measured and considered in determining speed. Further, in some embodiments, maintaining continuous operation at a boost speed may be avoided. Energy savings and noise reduction may result.



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A. CLASSIFICATION OF SUBJECT MATTER***F24F 11/02(2006.01)i, F24F 1/00(2006.01)i, F04B 49/20(2006.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F24F 11/02; G06F 15/16; H04J 3/22; H04B 7/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: thermostat, control, air, conditioning, compressor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0572149 B1 (-) 12 August 1998 See abstract	1-6
A	EP 0080838 B1 (-) 27 August 1986 See abstract, Fig. 1	1-6
A	US 7296426 B2 (-) 20 November 2007 See abstract, Fig. 1	7-24
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A	EP 0072982 B1 (-) 07 May 1986 See all claims	7-24
A	US 7377119 B2 (KIM SEUNG-CHUL et al.) 27 May 2008 See abstract, Fig. 1	7-24



Further documents are listed in the continuation of Box C.



See patent family annex.

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INTERNATIONAL SEARCH REPORT

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