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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/670,208	02/01/2007	James K. MARTIN	021944-105US	6687
26720 7590 08/21/2009 LOCKE LORD BISSELL & LIDDELL LLP ATTN: IP DOCKETING 600 TRAVIS STREET 3400 CHASE TOWER HOUSTON, TX 77002			EXAMINER ZEC, FILIP	
			ART UNIT 3744	PAPER NUMBER
			NOTIFICATION DATE 08/21/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

hoip@lockelord.com

DETAILED ACTION

Response to Amendment

1. Applicant's arguments filed 4/29/09 have been fully considered but they are not persuasive.

In reference to the rejection of independent claims 1 and 10, the applicant is arguing that “Patel fails to disclose a key element recited in claims 1 and 10, namely, electrical load sensors that are coupled to at least two of the electrical load units...In contrast, Patel advocates the use of a temperature gauge 100, not an electrical load sensor as required in the claims, to sense and provide temperature information to a controller 90 to control cooling. See, e.g., pars. [0028]-[0029]”. The examiner reiterates that Patel teaches the electrical load sensors used for measuring power consumption (par 0039; entire). Inherently, said load sensors are **thermoelectrically** or even, as the applicant suggested, possibly **electromagnetically** coupled to the computer components (120, FIG. 1) in order to perform said operation. But coupled, they must be. Additionally, Patel teaches that said load sensors may replace the temperature gauge (100, FIG. 1; par 0039, last sentence), which is exactly what the present invention claims with respect to the cooling system, per applicant’s arguments on page 8, first paragraph.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, the applicant is trying to argue that Patel does not teach that said cooling system comprises a branch control monitor coupled to the at least two electrical load sensors, the load sensors being coupled to a

Art Unit: 3744

plurality of electrical feeds, and the electrical feeds being coupled to the electrical load units, which is admitted in the 103(a) rejection. However, it is the secondary reference, Kammeter, which shows a branch circuit monitor (FIG. 1) comprising a digital signal processor (1, FIG. 1) arranged to carry out various calculations based on a voltage input (2, FIG. 1) from each of a plurality of power sources (3, FIG. 1) and on a current input from each of a plurality of non-contact current sensors (4, FIG. 1) one current sensor being provided between each branch circuit breaker (5, FIG. 1) and a corresponding load (6, FIG. 1) in order to allow said branch circuit monitor to make data available, via communications protocols such as Modbus RTU or RS232/RS485/422, to any number of remote sites. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Patel, to include the branch circuit monitor, as taught by Kammeter, in order to make data available to any number of remote sites. Thus, the rejection is proper and remains.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 4-6, 8-11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0147214 to Patel et al. (Patel) in view of U.S. Patent 6,330,516 to Kammeter (Kammeter).

In reference to claim 1, Patel teaches a system (10, FIG. 2) to cool a plurality of electrical load units (130, FIG. 2) with a central cooling unit (40, FIG. 2), comprising at least two electrical

Art Unit: 3744

load sensors (par 0039, first sentence) coupled to at least two of the electrical load units, each of the at least two electrical load units being coupled to at least one of the electrical load sensors (par 0039, first sentence), the electrical load sensors being adapted to sense electrical loads on the electrical load units (par 0039, entire); a controller (90, FIG. 2) coupled to the electrical load sensors and adapted to receive data from the load sensors (par 0039); a central flow conduit (30, FIG. 2) coupled to the central cooling unit and adapted to provide cooling fluid to the at least two electrical load units, the central flow conduit being coupled to at least two cooling outlets (cooling plates 20, FIG. 2) and the at least two cooling outlets being coupled to the at least two electrical load units (FIG. 2), each of the at least two electrical load units being coupled to at least one of the cooling outlets (FIG. 2); and at least two control valves (140, FIG. 2) coupled to the at least two cooling outlets, each of the at least two cooling outlets being coupled to at least one of the control valves (par 0036), and the controller being adapted to control proportional flows of the cooling fluid from the central flow conduit in the at least two cooling outlets to the at least two electrical load units based on the sensed electrical loads (par 0036, last sentence), but does not teach that said system further comprises a branch control monitor coupled to the at least two electrical load sensors, the load sensors being coupled to a plurality of electrical feeds, and the electrical feeds being coupled to the electrical load units. Kammeter shows a branch circuit monitor (FIG. 1) comprising a digital signal processor (1, FIG. 1) arranged to carry out various calculations based on a voltage input (2, FIG. 1) from each of a plurality of power sources (3, FIG. 1) and on a current input from each of a plurality of non-contact current sensors (4, FIG. 1) one current sensor being provided between each branch circuit breaker (5, FIG. 1) and a corresponding load (6, FIG. 1) in order to allow said branch circuit monitor to make data

Art Unit: 3744

available, via communications protocols such as Modbus RTU or RS232/RS485/422, to any number of remote sites.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Patel, to include the branch circuit monitor, as taught by Kammeter, in order to make data available to any number of remote sites.

In reference to claim 2, Patel and Kammeter teach the system as described in the rejection of claim 1, and Patel further teaches that the sensed electrical load is electrical current (power consumption in par 0039).

In reference to claim 4, Patel and Kammeter disclose the system as described in claim 1, and Kammeter further teaches a data communication link (daisy chain or star network configuration, col 2, lines 45-46) coupled between the branch control monitor (11, 1, FIG. 2A) and the controller (the remote sites, col 2, line 44) in order to enable centralized billing or auditing of power usage, and remote monitoring of branch circuit conditions.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Patel, to include the data communication link, as taught by Kammeter, in order to enable centralized billing or auditing of power usage, and remote monitoring of branch circuit conditions.

In reference to claim 5, Patel and Kammeter teach the system as described in the rejection of claim 1, and Patel further teaches that the cooling fluid comprises a gas, a liquid, or a combination thereof (par 0022, third and fourth sentences).

In reference to claim 6, Patel and Kammeter disclose the system as described in claim 1, and Kammeter further teaches a Modbus RTU/RS232/RS485/422 protocol (col 2, line 43-44) in order to make data available to any number of remote sites.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Patel, to include the control bus, as taught by Kammeter, in order to make data available to any number of remote sites.

In reference to claim 8, Patel and Kammeter teach the system as described in the rejection of claim 1, and Patel further teaches that the electrical load units comprise an electrical cabinet, a rack in the cabinet, or an electrical device (the computer board, par 0034).

In reference to claim 9, Patel and Kammeter teach the system as described in the rejection of claim 1, and Patel further teaches that the controller (90, FIG. 2) is coupled (via 100, FIG. 2) to the cooling unit (40, FIG. 2).

In reference to claims 10, 11 and 15, they claim the method of providing and configuring the apparatus of claims 1, 2 and 8, respectively, thus, they are rejected based on the rejections of claims 1, 2 and 8 above and the associated method steps follow directly from the use of the apparatus.

4. Claims 7, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Kammeter as applied to claims 1 and 10 above, and further in view of U.S. Patent 6,854,287 to Patel et al. (Patel '287).

In reference to claim 7, Patel and Kammeter disclose the system as described in claim 1, but do not teach at least two thermal sensors adapted to sense thermal conditions of the at least two electrical load units and provide thermal data to the controller. Patel '287 shows

Art Unit: 3744

temperature sensors (48, FIG. 2; col) located in the computer systems rack (12, FIG. 2) in order to supply temperature readings to a controller configured to operate the heat exchanger unit, the pump, the valve and the pipe valve (col 7, lines 1-6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Patel and Kammeter, to include multiple temperature sensors, as taught by Patel '287, in order to supply temperature readings to a controller configured to operate the heat exchanger unit, the pump, the valve and the pipe valve.

In reference to claim 13 and 14, they claim the method of providing and configuring the apparatus of claim 7, thus, they are rejected based on the rejection of claim 7 above and the associated method steps follow directly from the use of the apparatus.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Filip Zec whose telephone number is 571-270-5846. The examiner can normally be reached on Monday-Friday, from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Frantz Jules or Cheryl Tyler can be reached on 571-272-6681 or 571-272-4834, respectively. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. Z./
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art Unit
3744

8/17/09