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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JEFFREY NEIL ARENSMEIER

Appeal 2017–011856
Application 14/705,289
Technology Center 2800

Before BEVERLY A. FRANKLIN, MICHAEL P. COLAIANNI, and
JENNIFER R. GUPTA, *Administrative Patent Judges*.

FRANKLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ requests our review under 35 U.S.C. § 134(a) of the Examiner's decision rejecting claims 1–6, 9–16, 19, and 20, which constitute all the claims pending in this application. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

¹ Appellant is the Applicant, Emerson Electric Co., which, according to the Appeal Brief, is the real party in interest. Appeal Br. 3.

STATEMENT OF THE CASE

Claim 1 is illustrative of Appellant’s subject matter on appeal and is set forth below:

A grading system, comprising:

a first heat flux module that determines a first heat flux for a first period of a run cycle of a heating, ventilation, and/or air conditioning (HVAC) system of a building, wherein the HVAC system is in an OFF state during the first period of the run cycle, and

wherein the first heat flux module determines the first heat flux for the run cycle based on (i) a first return air temperature (RAT) of the HVAC system measured using a RAT sensor at a starting time of the first period and (ii) a second RAT of the HVAC system measured using the RAT sensor at an ending time of the first period;

a second heat flux module that determines a second heat flux for a second period of the run cycle of the HVAC system, wherein the HVAC system is in an ON state during the second period of the run cycle, and

wherein the second heat flux module determines the second heat flux for the run cycle based on a third RAT of the HVAC system measured using the RAT sensor at a starting time of the second period and a fourth RAT of the HVAC system measured using the RAT sensor at an ending time of the second period;

a third heat flux module that determines a third heat flux for the run cycle based on a sum of the first heat flux and the second heat flux;

a power module that determines a total power consumption of both indoor and outdoor components of the HVAC system during the run cycle;

a grade determination module that determines a first grade for the HVAC system based on the third heat flux of the run cycle and the power consumption during the run cycle; and

a reporting module that generates a displayable report, the report including the first grade of the HVAC system.

THE REFERENCES

The Examiner relies on the following prior art references as evidence of unpatentability:

Buda et al. (“Buda”)	US 2011/0144807 A1	June 16, 2011
An et al. (“An”)	US 2012/0330626 A1	Dec. 27, 2012
Quam et al. (“Quam”)	US 2015/0127174 A1	May 7, 2015

THE REJECTIONS

1. Claims 1, 4–11, and 14–20 are rejected under 35 USC § 103 as unpatentable over Buda in view of Quam.
2. Claim 2, 3, 12, and 13 are rejected under 35 USC § 103 as unpatentable over Buda in view of Quam and An.
3. Claims 1-6, 9–16, 19, and 20 are rejected under 35 U.S.C. § 101 as being directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more.

ANALYSIS

To the extent that Appellant has presented substantive arguments for the separate patentability of any individual claims on appeal, we will address them separately consistent with 37 C.F.R. § 41.37(c)(1)(iv).

Upon consideration of the evidence and each of the respective positions set forth in the record, we find that the preponderance of evidence supports the Examiner’s findings and conclusion that the subject matter of Appellant’s claims is unpatentable over the applied art, as well as being directed to a judicial exception, and thus, judicially-excepted from patent eligibility under 35 U.S.C. § 101. Accordingly, we sustain each of the Examiner’s rejections on appeal essentially for

the reasons set forth in the Final Office Action and in the Answer, and add the following for emphasis.

Rejection 1

The Examiner’s rejection is set forth on pages 8–15 of the Final Office Action, incorporated herein. The Examiner essentially relies upon Buda for teaching certain claimed elements, and states that Buda does not refer to performance indicators such as “grades,” so relies upon Quam for teaching grade determination and generating a displayable report of a grade. Final Act. 10–12.

Appellant argues that Buda states that “the term heat pump active sub-cycle, or HPAS, refers to the interval when the compressor unit of the heat pumping system is consuming power.” Appeal Br. 19; Buda, ¶ 69. Appellant states that Buda also teaches that “the term HIPS refers to the interval when the compressor unit of the heat pumping system is not consuming power.” Buda, ¶ 69. Appellant submits that HPAS and HPIS of Buda are periods (of time) when the compressor unit is ON and OFF, respectively. Appeal Br. 19.

Appellant argues that the first and second heat fluxes of claim 1, however, are not periods. Appeal Br. 19. Appellant argues that instead, claim 1 recites a first heat flux for a first period of a run cycle, and a second heat flux for a second period of the run cycle. Appellant argues that through the use of both heat flux and period, such as “first heat flux for a first period” and “second heat flux for a second period,” the first and second heat fluxes are clearly different than the first and second periods of time. *Id.* Appellant argues that Buda and Quam are silent as to determining a first heat flux for a first period of a run cycle and/or determining a second heat flux for a second period of the run cycle, and thus, the Examiner failed to provide a *prima facie* case of obviousness. Appeal Br. 19.

We are unpersuaded by such argument for the reasons presented on pages 17–18 of the Answer wherein the Examiner adequately explains how Buda meets these argued claim limitations. The Examiner’s table presented on page 17 of the Answer shows how the teachings of Buda suggest these claim elements, which we incorporate herein.

Appellant next argues that Buda and Quam do not teach determining such a first heat flux for a first period of a run cycle based on (i) a first return air temperature (RAT) of the HVAC system measured using a RAT sensor at a starting time of the first period and (ii) a second RAT of the HVAC system measured using the RAT sensor at an ending time of the first period, and/or determining such a second heat flux for a second period of the run cycle based on a third RAT of the HVAC system measured using the RAT sensor at a starting time of the second period and a fourth RAT of the HVAC system measured using the RAT sensor at an ending time of the second period. Appeal Br. 20.

We agree with the Examiner’s stated reply made on pages 18–19 of the Answer. Therein, the Examiner explains that the determination of RAT is a determination of temperature that is comparable to the temperature measurements shown in Figure 2 of Buda in reference to a prior art system. Therein, it is shown that temperature measurements are taken at the beginning and end of each sub-cycle (OFF sub-cycle: starting time of the first period/ ending time of the first period and ON sub-cycle: starting time of the second period/ ending time of the second period). The Examiner interprets heat flux as the heat transfer typically tracked in HVAC system by temperature changes and used to compute the efficiency of the HVAC system. Ans. 19. Appellant does not dispute this

interpretation of heat flux in the Appeal Brief, as pointed out by the Examiner on page 21 of the Answer.²

Appellant argues that regarding determining the first heat flux for the first run cycle based on a first return air temperature, the Examiner notes that paragraph 24 of Buda states that “the interior temperature can be a return air temperature from an intake area of an evaporator unit in the vapor compression system.” Final Act. 9. Appellant argues that Buda is silent as to HPAS (the alleged first heat flux of claim 1) being in any way based on the interior temperature or the return air temperature of paragraph 24. Appeal Br. 20.

We agree with the Examiner’s stated reply made on pages 19–20 of the Answer, which we incorporate herein. The Examiner refers to Figure 11 of Buda (reproduced on page 19 of the Answer). The Examiner explains how the measurement depicted in Buda’s Figure 11 is a temperature measurement in the air flow path at a particular position, which is the kind of measurement that is recited in the claims. Ans. 20. Implicit in the Examiner’s position is that selection of a location point for temperature measurement in an air flow path as claimed is suggested by the teachings of Buda and within the level of one of ordinary skill in the art. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”); *see also Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) (an analysis of obviousness “may include recourse to logic, judgment, and common

² On pages 9–10 of the Reply Brief, Appellant, for the first time, addresses the definition of “heat flux.” We cannot consider this new argument because it is not accompanied by a showing of good cause explaining why the argument could not have been presented in the Appeal Brief. *See Ex parte Borden*, 93 USPQ2d 1473, 1476–77 (BPAI 2010) (informative).

sense available to the person of ordinary skill that do not necessarily require explication in any reference or expert opinion.”).

Appellant then argues that the Examiner admits that “Buda does not explicitly teach at a starting time of the first period and (ii) a second RAT of the HVAC system measured using the RAT sensor at an ending time of the first period.” Appeal Br. 20; Final Act. 9. Appellant argues that, from this sentence, it is clear that the Examiner has parsed claim 1 in an arbitrary way and failed to consider claim 1 as a whole. Appellant argues that the phrase “[a]t a starting time of the first period” pertains to the first return air temperature of claim 1 which is used to determine the first heat flux of the first period. Specifically, claim 1 recites that “the first heat flux module determines the first heat flux for the run cycle based on (i) a first return air temperature (RAT) of the HVAC system measured using a RAT sensor at a starting time of the first period and (ii) a second RAT of the HVAC system measured using the RAT sensor at an ending time of the first period.” Appellant argues that considering the “first return air temperature” separately from the qualifier “measured using a RAT sensor at a starting time of the first period” renders this portion of the claim meaningless and the application of Buda improper. Appeal Br. 20–21.

In response, the Examiner states that he does not believe that the claim was parsed in an arbitrary way. Ans. 21. The Examiner explains that the extended claim recitation merely recites tracking the temperature over time by measuring temperature at the beginning and ending of each sub-cycle. The Examiner explains how the continuous temperature measurements suggested by Buda (e.g., bottom portion of Figure 2 of Buda) includes measurements at the boundaries of the sub-cycles (e.g., the data points at the time (tx) vertical lines). Ans. 21. We agree as Appellant has not persuasively convinced us otherwise.

On page 9 of the Reply Brief, Appellant replies and states that this position of the Examiner shows that the teachings are not actually in Buda but only suggestions. This is not persuasive because the rejection is not one of anticipation. Appellant further replies, in the Reply Brief (page 9), that while the bottom of Figure 2 of Buda includes temperature measurements graphed as a function of time, the Examiner failed to recognize that Buda is silent as to the use of specific ones of the temperatures at the specific times claimed to determine the claimed first and second heat fluxes and/or as to the determination of a third heat flux based on a sum of the claimed first and second heat fluxes. Again, this reply does not address the Examiner's stated position as set forth in the rejection and it therefore unpersuasive.

Appellant then argues that the Examiner also acknowledges that “Buda does not explicitly teach wherein the second heat flux module determines a second heat flux for a second period of the run cycle based on a third RAT of the HVAC system measured using the RAT sensor at a starting time of the second period and a fourth RAT of the HVAC system measured using the RAT sensor at an ending time of the second period.” Appeal Br. 21; Final Act. 9–10. Appellant argues that without support, the Examiner alleges that this portion of claim 1 is obvious and states that, “since the heat flux or thermal flux is the rate of heat energy transfer through a given surface, per unit time, it would have been obvious for one of ordinary skill in the art to designate the unit time as the interval between the starting and ending time of a period, such as the second period defined in the claim, with the benefit of providing appropriate input to the heat flux calculation while calculating the heat flux while the HVAC is on.” Appeal Br. 21; Final Act. 10. Appellant states that similar reasoning and lack of support was provided on page 9 of the Final Office Action with respect to the determination of the first heat flux. Appeal Br. 21.

In reply, the Examiner states that the definition of heat flux has not been contested by the Appellant, nor does the Appellant seem to argue the Examiner's basic contention that an HVAC system is a machine to administer heat transfer/heat flux in a room/building. Ans. 21. The Examiner states that Appellant's argument of lack of support lacks basis because the argued limitations reflect the basic operation of a HVAC system as explained in the record. Ans. 21. We agree, and Appellant has not persuaded us otherwise in the record (*see also* footnote 1, *supra*).

Appellant then argues that the Examiner failed to recognize that HPAS and HPIS of Buda (i.e., the alleged first and second heat fluxes of claim 1) are themselves intervals/periods of time, as discussed above. Appellant argues that there is no reason to incorporate another period into the periods of HPAS and/or HPIS because HPAS and HPIS are themselves periods. Appellant argues that this illustrates a fundamental flaw in the analogy drawn by the Examiner between HPAS and HPIS of Buda and the first and second heat fluxes of claim 1. Appeal Br. 21–22.

In reply, the Examiner states that this argument mischaracterizes the Examiner's discussion of HPIS and HPAS. Ans. 22. The Examiner explains that the HPIS and HPAS sub-cycles are associated with periods and temperature data which is continuously graphed during those periods. The Examiner states that sampling of the data during these time periods to make a calculation is a standard technique, and the sampling interval would define sub-periods during the sub-cycle periods. Ans. 21. We agree as the Appellant has not persuaded us otherwise in the record.

Appellant next argues that the first and second periods are not an input to the determination of the first and second heat flux values, respectively, and refer to

paragraphs 114 and 117 of the Specification. Appeal Br. 22. As such, Appellant submits that the Examiner’s obviousness conclusion to provide the “benefit of providing appropriate input to the heat flux calculation” is misguided, and the Examiner’s reasoning is flawed. Appellant states that first and second periods are not “appropriate inputs” in the context of the present application. Appeal Br. 22.

In response, on page 22 of the Answer, the Examiner states that the first heat flux value is based on data taken during the first period, and the second heat flux value is based on data taken during the second period. The Examiner states that therefore, data associated with the relevant periods would be the appropriate input to that calculation of heat flux values associated with each of those respective periods. We agree. Also, the Examiner notes that paragraph 114 of the publication of the Specification states:

“An ON heat flux module 424 determines an ON period heat flux for the run cycle based on the initial RAT of the run cycle and the ON ending RAT of the run cycle. For example only, the ON heat flux module 424 may determine the ON period heat flux for the run cycle using one of a function and a mapping that relates a temperature difference between the initial and ON ending RATs of the run cycle to heat flux. Heat flux may refer to a rate of movement of thermal energy.”

The Examiner explains that this has been the perspective and claim interpretation taken by the Examiner, i.e., the heat flux is merely a mapped relationship to the temperature change during the ON/(HPAS) sub-cycle and represents the heat transfer of the HVAC system. The Examiner states that paragraph 117 states the equivalent for the OFF sub-cycle. Ans. 22. Appellant has not persuaded us of error in the stated approach made by the Examiner.

Appellant next argues that Buda and Quam, individually and in combination, do not suggest the feature of claim 1 of a third heat flux module that determines a third heat flux for the run cycle based on a sum of the first heat flux and the second

heat flux. Appeal Br. 23. Appellant states that the Examiner relies upon Buda for teaching this aspect of the claimed subject matter, and cites Equation 1 and paragraph 78 of Buda in this regard. Final Act. 10. Appeal Br. 23. Appellant argues that paragraph 78 of Buda and Equation 1 of Buda do not reference HPAS and/or HPIS (i.e., the alleged first and second heat fluxes of claim 1). Appellant argues that therefore Buda could not logically teach a third heat flux module that determines a third heat flux for the run cycle based on a sum of the first heat flux and the second heat flux, as in claim 1. *Id.* Appellant argues that Buda is silent as to any heat flux for a run cycle being determined based on a sum of a first heat flux and a second heat flux, and that Quam does not remedy the deficiencies of Buda. Appeal Br. 23.

The Examiner responds and states that the premise of this argument is incorrect, as Appellant continues the misunderstanding of the HPAS and HPIS sub-cycles, as presented by the Examiner in the record. Ans. 23. We agree. The Examiner explains that in Buda, the full cycle (HPC) is comprised of sub-cycles (HPIS and HPAS, leading to the full cycle being the addition of the sub-cycles ($HPC=HPIS+HPAS$)). The Examiner states that this corresponds to the heat flux/heat transfer tracked by temperature during the sub-cycles (first and second heat flux) naturally summing to the heat flux of the full cycle (claimed as the third heat flux). Ans. 23.

Appellant next argue that Buda and Quam, individuality and in combination, do not teach or render obvious:

a power module that determines a total power consumption of both indoor and outdoor components of the HVAC system during the run cycle; and/or

Appeal Br. 23.

Appellant argues that Buda mentions calculating measured input power in paragraph 23. Appeal Br. 24. Appellant argues that Buda is silent, however, as to determining a total power consumption of both indoor and outdoor components of the UVAC system during the run cycle. Appeal Br. 24.

In response, the Examiner states that the rejection explained that these systems of Buda and Quam utilize indoor and outdoor components and that tracking the power usage would be understood to be necessary in the calculation of the efficiency of the system, as taught by Quam. Ans. 23. We are unpersuaded or error in this approach by the Examiner. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”); *see also Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) (an analysis of obviousness “may include recourse to logic, judgment, and common sense available to the person of ordinary skill that do not necessarily require explication in any reference or expert opinion.”).

In the Reply Brief, Appellant argues that Buda is silent as to determining a total power consumption of both indoor and outdoor components of the HVAC system during the run cycle, and merely references power of the compressor/condenser unit (outdoor equipment) and is silent as to any determination of a total power consumption of both indoor and outdoor components. This reply overlooks the Examiner’s position in the record (see particularly page 10 of the Final Office Action) that both Buda and Quam utilize both indoor and outdoor components and that tracking power usage of HVAC system including such components would be within the purview of the skilled artisan in view of the teachings of the applied art.

Appellant lastly argues that for at least the above reasons, Buda and Quam, individually and in combination, do not teach or render obvious the features of claim 1 of:

a grade determination module that determines a first grade for the HVAC system based on the third heat flux of the run cycle and the power consumption during the run cycle.

Appeal Br. 24.

In response, the Examiner disputes that the combination of Buda and Quam does not teach a grade determination module. Ans. 23. The Examiner refers to pages 10–11 of the Final Office Action for a detailed explanation of the grading system taught by Quam, reiterating that such would have been obvious to use with the HVAC system taught by Buda. *Id.* The Examiner reiterates that the combination of Buda and Quam presents an obvious combination of Buda’s mostly conventional HVAC system measuring heat transfer/heat flux over time via temperature sensors (including RAT), with the system of Quam that computes the HVAC system efficiency and assigns a grade to the result. The Examiner states that Appellant’s arguments appear to be based on overly focusing on reading the labels in the reference, which are not the same as the labels used in the present application (but which describe comparable concepts), so the arguments focus on form over substance. Ans. 23–24. We agree. In response, the Examiner disputes that the combination of Buda and Quam does not teach a grade determination module. Ans. 23.

In view of the above, we affirm Rejection 1 as we are not persuaded of reversible error in the Examiner’s position in the record.

Rejection 2

Rejection 2 is not separately argued by Appellant. Appeal Br. 25. We therefore affirm Rejection 2 for the same reasons that we affirm Rejection 1.

Rejection 3

The Examiner’s position for this rejection is set forth on pages 6–8 of the Final Office Action, which we incorporate herein. In response to the Examiner’s stated position, Appellant argues that claims 1 and 11 are not directed to an abstract idea and include significantly more than an abstract idea for the reasons presented on pages 8–18 of the Appeal Brief. Therein, Appellants refer to certain case law in support of their stated position in the record.

Appellant argues that the present claims are similar to claims addressed by certain case law (case law finding that the claims were not directed to an abstract idea). Appeal Br. 8–12. Appellant argues that the present claims involve determining different metrics (heat fluxes) and parameters (RAT) for monitoring and grading that were not previously used, and that the resulting displayable report, including a grade determined based on these different metrics and parameters, provides different and valuable information that was not previously available regarding the performance of an HVAC system. Appeal Br. 12. Appellant also submits that the present claims involve hardware (see ¶ 148) making the determinations, determining the grade, and generating the displayable report. *Id.*

Appellant concludes that the claimed subject matter addresses shortcomings and inabilities of conventional grading and monitoring systems, and are not directed to an abstract idea. Appeal Br. 12.

The Examiner’s response to Appellant’s aforementioned line of argument begins on page 6 of the Answer. As pointed out by the Examiner, the controlling precedent regarding an abstract idea excluded by judicial exception is found in *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014). Ans. 7. In this case, the Supreme Court of the United States reaffirmed the long-held principle that 35 U.S.C. § 101 contains an “important implicit exception: Laws of nature, natural phenomena, and

abstract ideas are not patentable.” *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013)). The Court provided a two-step analytical framework for determining whether a claim is patent eligible. *Id.* at 2355. The first step requires determining whether the claim is directed to one of these exceptions, such as an abstract idea. *Id.* If so, the second step requires determining “[w]hat else is there in the claims before us?” *Id.* (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1297 (2012)). That step involves searching for an inventive concept—i.e., an element or combination of elements in the claim that is “sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [abstract idea] itself.” *Id.* (quoting *Mayo*, 132 S. Ct. at 1294). Also, under § 101, a patent claim is ineligible if “(1) it is ‘directed to’ a patent-ineligible concept,” such as an “abstract idea,” and “(2), if so, the particular elements of the claim, considered ‘both individually and ‘as an ordered combination,’” do not add enough to “transform the nature of the claim” into a patent-eligible application.” *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (quoting *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2355 (2014)).

The Examiner discusses *Electric Power Group, LLC* on page 7 of the Answer as treating collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas. The Examiner states that, similarly, in the instant case, the claims are focused on a combination of such abstract-idea processes. Ans. 8. The Examiner states that the advancement the present claims purport to make is a process of gathering and analyzing information of a specified content, then displaying the results, and not any particular inventive technology for performing

those functions. The Examiner concludes that the claims are therefore directed to an abstract idea. Ans. 8.

The Examiner explains that the present claims gather temperature (RAT) data over time, which is comparable to the information gathering identified by *Electric Power Group, LLC*. Ans. 8. The Examiner states that the mathematical processing of the temperature differentials determines heat flux (a mathematical answer), which is then divided by total power input (another information input). This mathematical process of division produces an efficiency result (a mathematical result). The Examiner explains that this mathematical answer (the efficiency) is then mathematically assigned a grade. *Id.* The Examiner states that these steps are the “analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category” as identified by *Electric Power Group, LLC*. The Examiner states that the displayable report is merely the reporting of the mathematical result (the grade), which is comparable to the display of information identified by the *Electric Power Group, LLC* court and dismissed as “merely presenting the results of abstract processes of collecting and analyzing information.” Ans. 8.

In reply, beginning on page 2 of the Reply Brief, Appellant asserts that the Examiner has not identified what the Examiner believes to be the “abstract idea.” We are unpersuaded by such argument because the Examiner’s position identifies how the claims pertain to an abstract idea, as discussed, *supra*. We thus agree with the Examiner’s position in the record.

Having determined that the inventive concept is directed to an abstract idea, we look to see if claim 1 recites any additional element or combination of elements sufficient to ensure that any patent issuing with the claim amounts to “significantly more” than the abstract idea.

In this regard, Appellant presents argument on pages 12–18 of the Appeal Brief, which we do not repeat herein. In the Reply Brief, Appellant reiterates that the present claims are distinguishable from the claims addressed in *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed Cir. 2016). Reply Br. 2–3. Appellant submits that the present claims are more concrete and detailed than the claims addressed in *Electric Power Group, LLC*. Reply Br. 3–4. Appellant argues that the present claims involve new sources of information (e.g., the RAT sensor) that were not previously used in grading or monitoring, new types of information (e.g., RATs, heat fluxes, total power consumption) that were not previously used in grading or monitoring, and new techniques for analyzing that information (e.g., determining heat fluxes based on RAT, determining grade based on heat fluxes and total power consumption). Reply Br. 4–5.

Appellants also argue that claim 1 recites specific parameters associated with an HVAC system, such as heat fluxes, use of RATs (return air temperatures) taken at specific times, power consumption of both indoor and outdoor components, etc. Reply Br. 4. Appellant argues that the claimed parameters are much more concrete (and non-abstract) than the claim terms in *Electric Power Group, LLC*. *Id.* Appellant also argues that the present claims involve new sources of information (e.g., the RAT sensor) that were not previously used in grading or monitoring, new types of information (e.g., RATs, heat fluxes, total power consumption) that were not previously used in grading or monitoring, and new techniques for analyzing that information (e.g., determining heat fluxes based on RAT, determining grade based on heat fluxes and total power consumption). Appellant submits that the present claims are therefore distinguishable from non-specific claims in *Electric Power Group, LLC*. Reply Br. 4–5. Appellant refers to Figure 11 of Buda in this regard. Reply Br. 5–6.

However, for the reasons presented by the Examiner in the record, particularly on pages 7–8 of the Answer (discussed, *supra*), we are unpersuaded by such argument. Also, Appellant’s argument that the claims involve new sources of information not previously used in grading is found unpersuasive in view of the *prima facie* case of obviousness established by the Examiner in the record. We thus agree with the Examiner (Final Act. 7–8; Ans. 10–11) that the claims fail to include any such element or combination of elements, amounting to “significantly more” than the abstract idea. As the Examiner states, “[t]he application of this abstract idea [information collecting and analysis] to the technological area of an HVAC system does not add significantly more beyond the abstract idea itself.” Ans. 10.

We thus agree with the Examiner’s position, and are unpersuaded of error in it, that Appellant’s claimed subject matter is directed to the simple concept involving a mathematical algorithm utilized to produce a mathematical result (a heat flux, an efficiency based upon the heat flux and the value of the power input, and the assignment of a grade (being another mathematical step (e.g., 90%=A)). Ans. 9. A patent on such a concept would preempt its use in all fields and would effectively grant a monopoly over the abstract idea of calculating an efficiency and assignment of displaying a grade. *Alice*, 134 S. Ct. at 2354.

In view of the above, we affirm Rejection 3.

DECISION

Each rejection is affirmed.

TIME PERIOD

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED