UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HISASHI NAKAMURA, KOUJI TERAMI, and
TOSHIYUKI OKINO

Appeal 2008-5856
Application 10/073,959
Technology Center 2600

Decided: December 22, 2008

Before KENNETH W. HAIRSTON, ROBERT E. NAPPI, and JOHN A. JEFFERY, *Administrative Patent Judges.*

NAPPI, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 6(b) of the final rejection of claims 2 and 3.[1]

We reverse the Examiner's rejections of these claims.

---

[1] A hearing directed to the appeal of these claims was held on December 9, 2008.

INVENTION

The invention is directed towards a system to control the cooling fan of a liquid crystal projector. See page 2 of Appellants' Specification. Claim 2 is representative of the invention and reproduced below:

> 2. In a liquid crystal projector provided with a cooling fan, the liquid crystal projector comprising:
>
> a temperature sensor for detecting the internal temperature of the liquid crystal projector;
>
> an air pressure sensor for detecting outside air pressure;
>
> a driving circuit of the cooling fan,
>
> storage means for storing a control table representing the relationship between the temperature detected by the temperature sensor and the value of a control voltage for the driving circuit of the cooling fan for each of a plurality of classes into which the outside air pressure is divided;
>
> and means for determining the value of the control voltage for the driving circuit of the cooling fan on the basis of the control table corresponding to the class to which the outside air pressure detected by the air pressure sensor belongs and the temperature detected by the temperature sensor and outputting a voltage signal corresponding to the determined control voltage value to the driving circuit of the cooling fan.

REFERENCE

Sugawara	US 6,322,218 B1	Nov. 27, 2001

REJECTION AT ISSUE

The Examiner has rejected claims 2 and 3 under 35 U.S.C. § 102(e). The Examiner's rejection is on pages 3 and 4 of the Answer.[2]

---

[2] Throughout the opinion we refer to the Answer mailed June 11, 2007.

ISSUE

Appellants argue on pages 4 through 6 of the Brief and pages 2 through 3 of the Reply Brief,[3] that the Examiner's rejection is in error as the prior art does not teach all of the limitations of independent claims 2 and 3. Specifically, Appellants argue that Sugawara does not teach a stored table that represents the three variables temperature, air pressure, and control voltage, as is required by claims 2 and 3.

Thus, Appellants' contentions with respect to the rejection based upon 35 U.S.C. § 102(e) present us with the issue: did the Examiner err in finding that Sugawara teaches a control table representing a relationship between detected temperature and control voltage for the driving circuit for each of a plurality of classes of air pressure as claimed?

FINDINGS OF FACT

1. Sugawara teaches a projection type liquid crystal display system. The system includes a controller which monitors temperature and controls the cooling fan and the on/off of the lamp. Abstract.
2. The temperature detector (item 30, Fig. 1) of the system is mounted in the vicinity of the one of the liquid crystal light valves (items 4B, 4R, 4G, Fig. 1). The detector is monitored by the control unit and when the temperature exceeds a reference value the lamp or power source of the projector is turned off. Col. 6, l. 57-col. 7, ll. 7.

---

[3] Throughout the opinion, we make reference to the Brief, received Feb 5, 2007, and the Reply Brief, received July 25, 2007.

3. Since the temperature detector is spaced away from the light valves, the temperature measured by the detector is different than at the light valves. Col. 7, ll. 29-38.
4. To compensate for the difference in temperature, Sugawara teaches calculating a temperature offset, T0, which is used to determine the actual temperature of the light valves. Col. 4, ll. 29-41, col. 8, ll. 34-40.
5. Sugawara's disclosure includes several embodiments in which the temperature offset is calculated using different parameters. In one embodiment, a barometer is used to measure air pressure and the temperature offset is calculated using a table of temperature versus pressure (Fig. 5). Col. 8, ll. 33-40.
6. In other embodiments, the need for a barometer is eliminated because other values such as fan speed (Fig. 6), or fan motor voltage (Fig. 8) are used to calculate the temperature offset. Col. 9, ll. 47-54, col. 10, ll. 50-64, col. 11, ll. 1-8.

ANALYSIS

Appellants' contentions have persuaded us that the Examiner erred in finding that Sugawara teaches a control table representing a relationship between detected temperature and control voltage for the driving circuit for each of a plurality of classes of air pressure as claimed. Claim 2 recites "a control table representing the relationship between the temperature detected by the temperature sensor and the value of a control voltage for the driving circuit of the cooling fan for each of a plurality of classes into which the outside air pressure is divided," and using the table to control the voltage to

the motor. Independent claim 3 recites similar limitations. Thus, the scope of the claims includes that there is a table that describes the relationship between temperature and control voltage for each of several classes of air pressure, i.e. a table that describes a relationship between the three variables.

The Examiner states:

> The appellant argues that Sugawara et al fail to teach a table that represents temperature to control voltage. Examiner, respectfully, disagrees. A table that represents temperature control voltage is clearly disclosed in Fig. 8. The appellant's argues that Sugawara et a1 fail to include three variables, temperature, control voltage and air pressure. Examiner, respectfully, disagrees. Sugawara et a1 explicitly state that "In figure 8, the lateral axis refers to the fan applied voltage and the vertical axis refers to the temperature of the liquid crystal light value 4G. Further, figure 8, shows that the fan applied voltage at the position where the reference height is an atmospheric pressure (760 mm Hg). . ." In this case, the V vs. T graph was drafted at a particular atmospheric class P at 760 mm Hg.
>
> As explained in the rejection of claims 2 and 3, above, Sugawara et a1 do not limit their invention to two variable inputs. It is clear that temperature, air pressure and applied voltages can be used to determine the compensation factor (col. 15, lines 15-19). Furthermore, the air pressures can be stratified to different levels according to the positioning of the device (col. 15, lines 30-37). Sugawara et a1 also teach the use of other pressure classes in col. 15, lines 30-37.

Answer 4.

We disagree with the Examiner's findings. Initially, we note that Sugawara teaches that in the embodiment of Figure 8, a barometer is not used and there is no measure of pressure. Fact 6. Rather, a measure of the motor voltage is used to determine the air pressure. Fact 6. The voltage of 12.5 (the left most point on the graph of Figure 8) represents the reference height of 760 mm Hg (col. 10, ll. 58-62), thus other voltages represent

different pressures. Further, Sugawara's teachings in col. 15, lines 26-37 appear to be directed to setting the reference height (e.g. the left most point of the graph of Figure 8) to the environment in which the device is most likely to be used. However, we do not find that Sugawara teaches an embodiment that uses a table that describes the relationship between temperature and control voltage for each of several classes of air pressure as claimed. Accordingly, we will not sustain the Examiner's rejection of claims 2 and 3.

ORDER

The decision of the Examiner is reversed.

REVERSED

Eld

WESTERMAN, HATTORI, DANIELS, & ADRIAN, LLP
1250 CONNECTICUT AVENUE, NW
SUITE 700
WASHINGTON, DC 20036