UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ERIC SCOTT MICKO

Appeal 2007-4006
Application 10/388,862
Technology Center 2800

Decided: March 27, 2008

Before KENNETH W. HAIRSTON, MAHSHID D. SAADAT, and ROBERT E. NAPPI, *Administrative Patent Judges.*

NAPPI, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 6(b) from the final rejection of claims 1 through 15, and 24 through 35.

We affirm-in-part the Examiner's rejection of these claims.

INVENTION

The invention is directed to a passive infrared (IR) motion sensor. See page 3 of Appellant's Specification. Claim 1 is representative of the invention and reproduced below:

1. A passive infrared (IR) motion sensor, comprising:

at least a first IR detector outputting a first signal having a first frequency in response to a stimulus in a detection volume of the first detector;

at least a second IR detector outputting a second signal, the second signal having a second frequency different than the first frequency when the stimulus is a moving object, the second signal having the first frequency when the stimulus is non-moving; and

a processing system receiving the first and second signals and at least partially based on the first and second signals having different frequencies, outputting a detection signal representative of the moving object, and otherwise, when both detectors output the same frequency, not outputting a signal representative of a moving object.

REFERENCES

Schwarz	US 3,829,693	Aug. 13, 1974
Miyake	US 4,618,854	Oct. 21, 1986
Schwarz	US 5,420,567	May 30, 1995
Sugimoto	US 5,461,231	Oct. 24, 1995

REJECTIONS AT ISSUE

Claims 1, 7, 8, 13, 14, 24 through 27, 29 through 31, and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugimoto in view of Schwarz (‘567). The Examiner’s rejection is on pages 3 through 8 of the Answer.

Claims 2 through 6, 9 through 12, 15, and 32 through 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugimoto in view of Schwarz (‘567) and Schwarz (‘693). The Examiner’s rejection is on pages 8 through 10 of the Answer.

Claim 28 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugimoto in view of Schwarz ('567) and Miyake. The Examiner's rejection is on page 10 of the Answer.

Claims 8 through 12 stand rejected under 35 U.S.C. § 112, second paragraph. The Examiner's rejection is on pages 10 and 11 of the Answer.

Throughout the opinion, we make reference to the Brief (received October 4, 2005), Reply Brief (received March 6, 2006) and the Answer (mailed March 3, 2006) for the respective details thereof.

ISSUES

Appellant contends that the Examiner's rejection of claims 1, 7, 8, 13, 14, 24 through 27, 29 through 31, and 35 under 35 U.S.C. § 103(a) is in error. Appellant asserts that the independent claims on appeal recite a sensor that discriminates between moving and non-moving objects by determining whether the frequencies output by two detectors are the same or different. Appellant argues that the combination of Sugimoto and Schwarz ('567) does not teach such a feature.

Thus, the first issue before us is whether the Examiner erred in determining that the combination of Sugimoto and Schwarz ('567), teach or suggest a sensor that discriminates between moving and non-moving objects based upon a comparison of the output frequency of two detectors.

On page 9 of the Brief, Appellant argues that the Examiner's rejection of claims 8 through 12 under 35 U.S.C. § 112, second paragraph, is in error. Appellant states the claims are clear as written "[t]he first and second (unequal) frequencies recited in the first two elements of the claim are not

the equal frequencies subsequently received, nor is [it] grammatically correct to read the claim otherwise."

Thus, the second issue before us is whether the Examiner erred in rejecting claims 8 through 12 under 35 U.S.C. § 112, second paragraph.

FINDINGS OF FACT

1. Sugimoto teaches a passive-type moving object detector which makes use of two columns and two rows of infrared detection regions. Abstract.
2. The purpose of Sugimoto's device is to detect movement of a person and avoid false alarms from movement by a non-human object (i.e. a small animal such as a dog). Col. 2, ll. 9-12.
3. The system monitors the output of both the columns of detectors and the rows of detectors and the positive and negative peak output from each detector is held. A circuit subtracts the positive peak from the negative peak and if the value is greater than a threshold the intruder is a human. Sugimoto, col. 4, ll. 11-20.
4. Figures 3(A) and 3(B) depict the wave forms produced as a person passes in front of the detectors. Figure 3(C) depicts the difference between the positive peaks and the negative peaks. Sugimoto, col. 4, ll. 22-39.
5. Figures 4(A) and 4(B) depict the wave forms produced as a dog passes in front of the detectors. Figure 4(C) depicts the difference between the positive peaks and the negative peaks. Note the difference values are much lower than when a person passes in front of the detector. Sugimoto, col. 4, ll. 40-56.

6. Sugimoto teaches that there are two sensors are connected in series with like polarities together (i.e. negative polarity of the first connected to negative polarity of the second), and that this arrangement (differential connection), negates any ambient interference with the detectors. Col. 1, ll. 38-40, 48-52, see also circuit arrangement of items 3a, 3b, 4a, and 4b in figure 2.
7. Sugimoto does not teach that the frequency output from the detectors is measured, rather, Sugimoto implicitly teaches measuring the magnitude of the output of the detectors, to perform the calculation discussed in fact 5.
8. Schwarz (‘567) teaches a combination fire and intrusion alarm that makes use of an infrared detector. Abstract
9. Schwarz (‘567) teaches that it is known to use two infrared detectors connected in series with like polarities together (i.e. negative polarity of the first connected to negative polarity of the second). This is done so that identical changes in temperature monitored by both sensors cause identical changes, which are then canceled by common mode rejection. Col. 1, ll. 19-29.
10. Schwarz’s (‘567) system makes use of the common mode rejection to monitor for intruders, but also monitors only one of the detectors (thus there is no common mode rejection) to determine if there is a fire present in the monitored space. Col. 7, ll. 42-61.

ANALYSIS

Appellant's arguments have persuaded us that the Examiner's rejection of independent claims 1, 8, 13, 24, and 31 under 35 U.S.C. § 103(a) is in error. Independent claim 1 recites a "a processing system receiving the first and second signals and at least partially based on the first and second signals having different frequencies, outputting a detection signal representative of the moving object, and otherwise, when both detectors output the same frequency, not outputting a signal representative of a moving object." Thus, the scope of claim 1 requires that detection is determined when the frequencies are determined to be different. Independent claims 8, 13, 24, and 31 recite similar limitations.

In rejecting the independent claims under 35 U.S.C. § 103(a), the Examiner states:

> Sugimoto *et al.* clearly disclose that detector signals comprise of waveforms having different frequencies (see *e.g.*, Figs. 3a and 3b) and that an analysis of these waveforms having different frequencies allows the detection of a body moving through the field of view. Therefore the combined teachings of the references would have suggested to those of ordinary skill in the art that an analysis of waveforms having different frequencies allows the detection of a body moving through the field of view.

Answer 11. While we agree that Sugimoto teaches that the detector signal shown in figure 3(A), has a different frequency from the signal shown in figure 3(B), we disagree with the Examiner's finding that the analysis of the frequencies is such that a difference in frequencies results in outputting a detection signal as claimed. We find that the waveforms from the detectors in Sugimoto are inputted into a peek hold circuit, the peak values of both the positive wave and negative wave are used in a calculation. Facts 3 and 4.

The difference in these peak values is compared to a threshold value to determine if there is an intruder (whether a detection signal is generated). Fact 5. We find no teaching in Sugimoto that measures the frequencies. Fact 7. Further, we find that Schwarz ('567) teaches a system for measuring both motion and fire. Fact 8. However, we find no teaching in Schwarz ('567) that teaches analyzing the frequencies output from the detectors such that a difference in frequencies results in outputting a detection signal as claimed. Accordingly, we reverse the Examiner's rejection of independent claims 1, 8, 13, 24, and 31, and dependent claims 7, 14, 25 through 27, 29, 30, and 35 under 35 U.S.C. § 103(a) as being unpatentable over Sugimoto in view of Schwarz ('567).

The Examiner has not asserted, nor do we find that that the additional references to Schwarz ('693) or Miyake, provide teachings or suggestions which rectify the above noted deficiency in the rejection of independent claims 1, 8, 13, 24, and 31. Accordingly, we similarly reverse the Examiner's rejection of claims 2 through 6, 9 through 12, 15, 28, and 32 through 34 under 35 U.S.C. § 103(a).

Appellant's arguments directed to the Examiner's rejection of claims 8 through 12 have not persuaded us of error. Independent claim 8 states:

> receiving a first frequency from a first passive IR detector; receiving a second frequency from a second passive IR detector, the first and second frequencies not being equal; …. receiving equal frequencies from the passive IR detectors and in response not outputting the signal indicating the presence of the moving object.

The Examiner states on pages 10 and 11 of the Answer, that the claim is indefinite as "[t]he frequencies from the passive IR detectors are <u>either</u> equal <u>or</u> not equal." We concur with the Examiner, claim 8 recites one frequency

from the first IR detector, the first frequency and one frequency from the second detector, the second frequency, and that these frequencies are different. The claim further recites "receiving equal frequencies from the passive IR detectors." As neither the claim nor the specification describes that the individual IR detectors output two frequencies at the same time, we consider the proper interpretation that the frequencies, discussed in the "receiving equal frequencies" limitation, to be the first and second frequencies recited as being received from the detectors. Thus, we concur with the Examiner that claim 8 is ambiguous, and thereby indefinite as the same two frequencies can not both be equal and unequal. Accordingly, we affirm the Examiner's rejection of claims 8 through 12 under 35 U.S.C. § 112, second paragraph.

ORDER

For the foregoing reasons, we will not sustain the Examiner's rejections under 35 U.S.C. § 103(a). However, we affirm the Examiner's rejection of claims 8 through 12 under 35 U.S.C. § 112, second paragraph. The decision of the Examiner is affirmed-in-part.

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

AFFIRMED-IN-PART

tdl

ROGITZ & ASSOCIATES
750 B STREET
SUITE 3120
SAN DIEGO CA 92101