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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/285,290 | 10/04/2016 | Gary J. PITCHER | 44000560.1016CON | 5898 |

23280 7590 09/27/2019
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| EXAMINER | |
|---|---|
| TRUONG, NGUYEN T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2486 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 09/27/2019 | ELECTRONIC |

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* GARY J. PITCHER

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Appeal 2018-008274
Application 15/285,290[1]
Technology Center 2400

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Before ROBERT E. NAPPI, ELENI MANTIS MERCADER, and ALEX S. YAP, *Administrative Patent Judges*.

YAP, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the final rejection of claims 13–23, which are all the claims pending in this application. (*See* Final Office Action (mailed August 24, 2017) ("Final Act.") 1.) We have jurisdiction under 35 U.S.C. § 6(b)

We reverse.

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[1] According to Appellant, the real party in interest is Framatome Inc. (App. Br. 2.)

## STATEMENT OF THE CASE

### *Introduction*

According to the Specification, Appellant's invention "relates generally to nuclear power plants, and more particularly to the visual inspections of nuclear power plants." (October 4, 2016 Specification ("Spec.") 1.) Claim 13 is illustrative, and is reproduced below (with minor reformatting):

> 13. A method for filtering radiation on a CCD based camera inspection video, the method comprising:
>
> providing the CCD based camera in a nuclear power plant;
>
> capturing video signals in the nuclear power plant via the camera;
>
> converting the video signals to a plurality of digital video frames;
>
> checking pixels in each of the digital video frames and comparing an intensity level for each pixel to pixel intensity levels of a plurality of surrounding pixels;
>
> identifying each pixel as being a radiation bright spot caused by interference from radiation in the nuclear power plant if the pixel is brighter than the surrounding pixels;
>
> creating a filtered video without effects of the radiation by replacing the radiation bright spots and surrounding pixels with intensity values of corresponding pixels of another of the frames to create a filtered frame; and
>
> displaying the filtered video via a computer.

*Prior Art and Rejections on Appeal*

The following table lists the prior art relied upon by the Examiner in rejecting the claims on appeal:

| | | |
|---|---|---|
| Van Tyne, Sr. (“Van”) | US 5,153,924 | Oct. 6, 1992 |
| Chugg | US 7,145,150 B2 | Dec. 5, 2006 |
| Kravis et al. (“Kravis”) | US 7,965,816 B2 | June 21, 2011 |

Cho, J. W., Lee, J. K., Hur, S., Koo, I. S., Hong S. B., A CCD Camera Lens Degradation Caused by High Dose-Rate Gamma Irradiation. *Trans. KIEE* (2009), 58(7), 1450–1455. (“Cho.”).

Claims 13–19, 21, and 22 stand rejected under 35 U.S.C. § 103 as being unpatentable over Chugg in view of Kravis. (*See* Final Act. 4–10.)

Claim 20 stands rejected under 35 U.S.C. § 103 as being unpatentable over Chugg in view of Kravis and Van. (*See* Final Act. 10–11.)

Claim 23 stands rejected under 35 U.S.C. § 103 as being unpatentable over Cho in view of Chugg. (*See* Final Act. 11–13.)

## ANALYSIS

We have reviewed the Examiner’s rejection in light of Appellant’s arguments that the Examiner has erred. We are persuaded the Examiner erred in rejecting the claims on appeal.[2]

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[2] Because we do not sustain the Examiner’s rejections for the reasons discussed herein, we need not address Appellant’s further arguments. *See Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (finding an administrative agency is at liberty to reach a decision based on “a single dispositive issue”).

*"checking pixels in each of the digital video frames and comparing an intensity level for each pixel to pixel intensity levels of a plurality of surrounding pixels"*

Independent claims 13, 21, and 23 recite the above limitation. With regard to claim 13, the Examiner finds Chugg teaches "checking pixels in each of the digital video frames; determining if the pixel is brighter than the surrounding pixels; comparing an intensity level for each pixel to pixel intensity levels of a plurality of surrounding pixels (col. 4, lines 65–67; col. 6, lines 3–22)." (Final Act. 5; *see also id.* at 9–10 (regarding claim 21), 12 (regarding claim 23).) Appellant disagrees and contends that the cited portions of Chugg "merely states that the signal level each of the pixels in a 10x10 area is compared to a *pre-defined threshold*, not the signal levels of the surrounding pixels." (App. Br. 8.) We agree.

Column 4 lines 65 to 67 of Chugg states that "[t]he radiation signal intensities among the CCD pixels will have the statistics of a compound Poisson distribution for both the proton/ion flux and the electron flux." Column 6, lines 3 to 22 states the following:

> There is also a requirement for radiation images for both the proton and the electron radiation fields to be generated. Since each image requires about 100 bytes, the data is reduced to around 2 kbytes per second for a 0.1 second or 10 Hz frame rate. Furthermore, occasional ion strikes should be discernible in the proton field image as RIE's with exceptional proton counts since it is known that ions produce large comet-like clusters of saturated pixels.
>
> A relatively simple algorithm was utilised for the analysis of test pixel data to generate the proton and electron RIE's shown at FIGS. 5 and 6. The assumption was made that very few pixels see proton hits that would be seen within any single integration time. *Firstly the number of pixels in each RIE which record a signal level above a pre-defined Proton Counting Threshold*

> *(PCT) were counted.* This count in itself provides a good measure of the proton radiation intensity and was used directly to generate the proton RIE shown at FIG. 5. The average excess signal (i.e. above the mean noise) in the remaining pixels was then used to define the electron RIE shown at FIG. 6.

(Emphasis added.) These portions of Chugg at most identify pixels above "a pre-defined Proton Counting Threshold" and do not mention comparing the intensity of a pixel to its surrounding pixels.

We are similarly not persuaded by the Examiner's reliance on Kravis:

> It is noted that Kravis discloses [“]checking pixels in each of the digital frames and comparing an intensity level for each pixel to pixel intensity levels of a plurality of surrounding pixels and identifying each pixel as being a radiation bright spot caused by interference from radiation if pixel is brighter than the surrounding pixels" (col. 21, line 40 to col. 22, line 24), where white dots corresponds to radiation bright spots and the dark background corresponds to the plurality of surrounding pixels. By comparing the intensity of each pixel to its surrounding pixels (i.e. the bright spots are brighter than the dark background), the bright spots (i.e. pixels caused by radiation) can be identified against the dark background (i.e. pixels not caused by radiation)).

(Ans. 12–13.) The relevant portion of Kravis column 21, line 40 to column 22, line 24 is reproduced below:

> Cosmic ray interactions can deposit very large amounts of energy in the scintillator, thereby creating very large signals that can saturate or overload the PMT and/or the detector electronics. Cosmic ray events in the scatter image may appear as white dots in the dark background (low scatter region) and as white dots in parts of the transmission image that have attenuating objects, making a dark background for the white cosmic ray pixel. . . . In some implementations cosmic ray events are detected by monitoring the signal from the detector system or the PMT output. *Any pixel in which the signal exceeds a preselected threshold is marked for modification. It is preferable that several adjacent pixels, usually 3 to 4, also be marked to account for the*

> *likelihood that the recovery time of the PMT detector system after a given cosmic ray event affects more than just a single pixel.*

(Emphasis added.) We agree with Appellant that the cited portion of Kravis "merely states that to determine whether pixels are skewed, the signal of each of the pixels is compared to a *preselected threshold*, and that surrounding pixels, without considering their intensity levels, are automatically marked for modification." (App. Br. 9.) The Examiner does not respond to Appellant's contention. (*See generally* Ans. 12–13.)

For the foregoing reasons, we are persuaded of Examiner error in the rejection of claim 13 and do not sustain the 35 U.S.C. § 103 rejection of claim 13. The Examiner relies on the same arguments for the rejection of claims 14–23; therefore, we also do not sustain the 35 U.S.C. § 103 rejections of claims 14–23.

## DECISION

We reverse the decision of the Examiner to reject claims 13–23.

## REVERSED