

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS VON DER HAAR

Appeal 2007-2264
Application 10/168,162
Technology Center 2800

Decided: November 9, 2007

Before ANITA PELLMAN GROSS, JEAN R. HOMERE,
and SCOTT R. BOALICK, *Administrative Patent Judges*.

GROSS, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

Thomas von der Haar (Appellant) appeals under 35 U.S.C. § 134 from the Examiner's Final Rejection of claims 6, 7, and 10. We have jurisdiction under 35 U.S.C. § 6(b).

Appellant's invention relates generally to a radiation detector. (See Spec. 1:5-9.) Claim 6 is illustrative of the claimed invention, and it reads as follows:

6. A radiation detector comprising:

a plurality of discrete detector elements arranged in a two-dimensional array, each of said detector elements comprising a scintillator and a photodiode interacting with said scintillator, each scintillator converting radiation incident thereon into light, said array having edges and allowing detection of said radiation, emitted from a focus, incident in a detector zone of said array, said radiation having scattered radiation associated therewith; and

said detector elements in said array including a plurality of edge detector elements disposed at said edges of said array, the respective scintillators of only said edge detector elements each having an additional extent, compared to detector elements that are not disposed at said edges, said additional extent proceeding transversely with respect to the edge of the array, at which the edge detector element is located and making said edge detector elements larger than necessary for encompassing said detection zone, said detector elements in said array having, in combination, a total radiation-incident area that equals a total light-emitting area of said detector elements in said array, and the respective scintillators of said edge detector elements, in combination, forming a frame around said detection zone that absorbs said scattered radiation and that allows detection of said radiation emitted from said focus if a shift in position of said focus occurs.

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Mattson	US 4,947,412	Aug. 07, 1990
Homme	EP 0932053 A1	July 28, 1999

Claims 6, 7, and 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Homme in view of Mattson.

We refer to the Examiner's Answer (mailed December 8, 2006) and to Appellant's Brief (filed October 10, 2006) and Reply Brief (filed February 12, 2007) for the respective arguments.

SUMMARY OF DECISION

As a consequence of our review, we will reverse the obviousness rejection of claims 6, 7, and 10.

OPINION

Independent claim 6 recites, in pertinent part, detector elements detecting radiation "emitted from a focus, incident in a detector zone," and the scintillators of the edge detector elements have an additional extent "making said edge detector elements larger than necessary for encompassing said detection zone." The additional extent forms a frame around the detection zone that "allows detection of said radiation emitted from said focus if a shift in position of said focus occurs." Last, claim 6 requires "a total radiation-incident area that equals a total light-emitting area of said detector elements."

The Examiner asserts (Ans. 3) that Homme shows in Figure 12, only edge detector elements having an additional extent proceeding transversely with respect to the edge of the array, making the edge detector elements larger than the detection zone. Appellant contends (Br. 7) that Homme shows in Figures 1 and 11 that light receiving array 6 is smaller than the radiation incident surface of the scintillator layer 7, which makes the

radiation incident area larger than the light-emitting area of the detector elements. The Examiner admits (Ans. 4) that Homme fails to allow detection of radiation emitted from a focus if a shift in position of the focus occurs. The Examiner relies upon Mattson to remedy this deficiency. Appellant contends (Br. 8-10) that Mattson explicitly forms the length of the scintillator longer than the photodiode, which makes the radiation incident surface larger than the light-emitting surface of the detector elements. The issue, therefore, is whether the combination of Homme and Mattson results in a total radiation-incident area that equals a total light-emitting area of said detector elements.

Homme shows, in Figures 1 and 11, scintillator 7 larger than light-receiving device array 6 of photodiodes 2. Homme discloses (para. 0027) that "substantially all the visible light generated by the scintillator 7 is made incident on the light-receiving device 2." This would suggest that radiation is not incident upon the additional area of the scintillator, or, rather, that the radiation-incident area equals a total light-emitting area. We note, however, that Homme also discloses (para. 0030) scintillators formed only in the effective screen area, not on the light receiving devices near the bonding pads, which reduces the sensitivity of the photodiodes near the bonding pads, thereby suggesting that the radiation-incident area is smaller than the light-emitting area.

Mattson discloses (col. 3, ll. 52-53) that the radiation receiving face of the scintillator is larger in area than the photosensitive face of the photodiode. Mattson further discloses (col. 4, ll. 20-27) that the scintillator is sized "to subtend the full radiation fan beam including the penumbral region associated with an x-ray tube focal spot of finite size, alignment

tolerances of the x-ray tube and detector ring, and focal spot wobble. . . . [and also] to be sufficiently longer than the photodiode to overhang the portion of the photodiode face at which the lead wires are connected." Thus, Mattson's scintillator is sized such that the radiation-incident area is greater than the light-emitting area of said detector element. In other words, combining with Homme Mattson's teaching of a scintillator large enough to allow detection of radiation emitted from a focus if a shift in position of the focus occurs would also require making the scintillator's radiation-incident surface greater than the light-emitting area of the detector element. Therefore, the combination of Homme and Mattson fails to render obvious independent claim 6 and its dependents, claims 7 and 10.

ORDER

The decision of the Examiner rejecting claims 6, 7, and 10 under 35 U.S.C. § 103 is reversed.

REVERSED

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