

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY CORPORATION
Petitioner

v.

YISSUM RESEARCH DEVELOPMENT COMPANY OF THE
HEBREW UNIVERSITY OF JERUSALEM
Patent Owner

Case No. IPR2013-00219 (SCM)¹

Patent No. 7,477,284
Issue Date: Jan. 13, 2009
Title: SYSTEM AND METHOD FOR CAPTURING AND VIEWING
STEREOSCOPIC PANORAMIC IMAGES

**PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE TO
PETITION UNDER 37 C.F.R. § 42.23**

¹ Case IPR2013-00327 has been merged with this case.

I. Introduction

Patent Owner (“Yissum”) attempts to distinguish claims 1-4, 7, 10, 20, 27-29 and 36-38 of U.S. Patent No. 7,477,284 (the “284 Patent”) over the prior art on two bases: (1) that each of Kawakita and Asahi fails to teach “a processor [to] generate a plurality of mosaics . . . [that] provide a sense of depth of the scene”; and (2) that Asahi fails to teach “a display that receives a plurality of the mosaics and displays them so as to provide a sense of depth of the scene.” (Patent Owner’s Response (“Resp.”) 13, 24, 30). Yissum’s first argument relies a non-existent claim limitation. None of the claims call for a processor that generates mosaics that provide a sense of depth of the scene. Yissum rewrites the claims to incorporate a function of the display (“displays them so as to provide a sense of depth of the scene”) into the processor element. Yissum does not dispute that Kawakita discloses such a display.

Yissum’s argument that Asahi does not disclose such a display relies on Prof. Essa’s opinion that “stereoscopic *viewing*” is not viewing, but instead is calculating height. Prof. Essa’s opinion is contradicted by the term itself, by the context in which the term appears, by the entirety of Asahi’s disclosure, by the usages of the term in other references, and by Prof. Darrell.

II. The Board Should Find Claims 1-4, 7, 10, 20, 27-29 and 36-38 Unpatentable

A. Claims 1-4, 7, 10, 27-29, 36 and 38 Are Unpatentable Over Kawakita on the Grounds Stated in the Decision on Institution

1. Yissum Relies on a Non-Existent "Processor" Limitation

Yissum argues that claims 1-4, 7, 10, 27-29, 36 and 38 are patentable over Kawakita because Kawakita fails to teach "a processor [to] generate a plurality of mosaics . . . [that] provide a sense of depth of the scene." (Resp. at 13). The claims contain no such limitation.

Each of independent claims 1 and 27 is directed to an "imaging apparatus" that comprises "at least one imager," "a processor" and "a display." (Sony-1001 at 13:62 – 14:13, 16:5-30). That the "processor" and the "display" are separate elements is clear from dependent claims 2 and 28, which each recite that "the imaging apparatus is a portable hand-held device including a housing for accommodating the at least one imager, the processor and the display." (*Id.* at 14:14-17, 16:31-34). Independent claim 38 is directed to a "method for processing image data" and contains no reference "a processor." (*Id.* at 17:3-25). The final step of the method is "displaying a plurality of the mosaics so as to provide a sense of depth of the scene." (*Id.* at 17:24-25).

Yissum rewrites claims 1 and 27 by substituting ellipses for much of the claim text to obscure the fact that the "display," not the processor, performs the function of "displaying [the mosaics] so as to provide a sense of depth of the scene." Yissum does not argue that Kawakita fails to disclose such a display. Kawakita clearly does

disclose such a display, as the Board has correctly noted. (Decision on Institution (IPR2013—00219, Paper 16) (“Decision”) at 22-24).

The Board has construed the term “display” to mean “one or more elements that receive a plurality of the mosaics and display the plurality of mosaics so as to provide a sense of depth of the scene from which the mosaics were generated for viewing by a person.” (Decision at 22). Kawakita discloses that a “field test was conducted applying these techniques to panoramic images of an elevator hallway in which the distance to objects varies greatly.” (Sony-1004 at 18, § 7). The “panoramic images” are shown in Fig. 5, and were generated by mosaicking “slit images excised from frame images,” as described in §§ 2-5. (Sony-1004 at 16, § 5). Kawakita states that the mosaics were displayed to persons and provided a sense of depth: “As a result of stereoscopic viewing with alignment control of the panoramic images using the calculated depth parallax angles with 10 research personnel, there were no noticeable double images in the objects attended to, and the sense of depth was faithfully reproduced.” (Sony-1004 at 18, § 7). It is inherent that “one or more elements” received the mosaics to display them. Therefore, Kawakita does disclose a display, as defined by the Board. As noted above, Yissum does not argue otherwise.

Instead, Yissum makes irrelevant arguments that all of Kawakita’s mosaic pairs that are capable of providing a sense of depth require parallax adjustment to align the images, that the adjustment is performed on one sight line direction at a time, and that, therefore, the processor does not generate mosaics that provide a sense of depth

of the entire scene. (Resp. at 13-17). However, under the Board's construction, the display need only "display the plurality of mosaics so as to provide a sense of depth of the scene from which the mosaics were generated for viewing by a person." This construction does not preclude adjustment of the mosaics to align them for display, nor does it require that the display provide a sense of depth along all sight line directions in the scene at one time. The Board has construed the term "sense of depth of the scene" to mean "the visual perception of differential distances among objects in a person's line of sight." (Decision at 17-18). Therefore, the construction is met if there is a perception of differential distances along a line of sight. Once adjustment is performed for a line of sight, a "sense of depth of the scene" is provided." Therefore, Yissum's irrelevant arguments should be rejected.

2. Yissum's Arguments Concerning the Non-Existent "Processor" Limitation Mischaracterize Kawakita's Disclosure

In attempting to distinguish Kawakita on the basis of the non-existent "processor" limitation, Yissum mischaracterizes Kawakita's disclosure in two respects. First, Yissum contends that Kawakita discloses that all mosaic image pairs that are capable of providing a sense of depth require parallax adjustment. Second, Yissum contends that Kawakita discloses that the mosaic image pairs that require adjustment for "faithful stereoscopic viewing" provide no sense of depth without adjustment. Yissum is incorrect in both respects.

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