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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/574,747	03/06/2007	Tim Nielsen	2004P02039WOUS	8982
24737	7590	03/01/2013	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			NGUYEN, HIEN NGOC	
			ART UNIT	PAPER NUMBER
			3777	
			NOTIFICATION DATE	DELIVERY MODE
			03/01/2013	ELECTRONIC

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* TIM NIELSEN, STEFFEN WEISS,  
TOBIAS SCHAEFFTER, BERNHARD GLEICH, PAUL HAAKER,  
UDO VAN STEVENDAAL, and PETER MAZURKEWITZ

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Appeal 2011-012329  
Application 11/574,747  
Technology Center 3700

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Before DONALD E. ADAMS, LORA M. GREEN, and  
ERICA A. FRANKLIN, *Administrative Patent Judges*.

FRANKLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) involving claims to an apparatus for combined optical-ultrasound imaging. The Patent Examiner rejected the claims as anticipated. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

Claims 1 and 3-11 are on appeal. Independent claim 1 is representative and reads as follows:

1. An apparatus for combined optical-ultrasound imaging, comprising: an ultrasound source; an ultrasound reconstruction unit for reconstruction of an ultrasound image; a detector for the detection of emitted fluorescent light; an optical reconstruction unit for the generation of an image from detected fluorescent light; and *means for synchronizing the emission of ultrasound, the detection of the emitted fluorescent light and/or the generation of an image.*

(App. Br. 10, Claims App'x.)(Emphasis added).

The Examiner rejected claims 1 and 3-11 under 35 U.S.C. § 102(b) as anticipated by Jansen.<sup>1</sup>

Claims 3-11 have not been argued separately and therefore stand or fall with independent claim 1. 37 C.F.R. § 41.37(c)(1)(vii).

#### ANTICIPATION

The Examiner found that Jansen disclosed an apparatus for combined optical-ultrasound imaging comprising an ultrasound source and a detector for the detection of emitted fluorescent light. (Ans. 4.) The Examiner also found that Jansen disclosed that its apparatus further comprised an optical reconstruction unit for generating an image from the detected fluorescent light, and an ultrasound reconstruction unit for reconstruction of an ultrasound image. (*Id.*) According to the Examiner, Jansen's apparatus inherently comprised both optical and ultrasound reconstruction units in order to create anatomical imaging from ultrasonic scan data and functional imaging from optical data, as disclosed by Jansen. (*Id.*)

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<sup>1</sup>Patent Application No. US 2005/0107694 A1 by Floribertus Heukensfeldt et al., published May 19, 2005.

The Examiner found that the Specification neither contained a definition nor support for the claim term “synchronizing” or the claim recitation “means for synchronizing the emission of ultrasound, the detection of fluorescent light and/or the generation of an image.” (*See id.* at 2, 4, 7.) Therefore, the Examiner interpreted synchronously to be the same as simultaneously (*id.* at 5) and found that Jansen’s simultaneous imaging using ultrasound wave and light amounted to a “means for synchronizing the emission of ultrasound, the detection of fluorescent light and/or the generation of an image” (*id.* at 4). According to the Examiner:

it is inherent that emission of ultrasound wave, detection of fluorescent light and/or generate of an image must happen simultaneously/synchronously because the ultrasound wave is used to modulate the fluorescent light therefore emission of ultrasound wave must happen at the same time as the emission of fluorescent light and the modulated fluorescent light is being detected to generate the image; the nature of inter-dependencies of the operations involving emission, detection and generation disclose by Jansen implicitly suggest the existence of a means for synchronizing these operation[s]....

(*Id.*) In other words, the Examiner found Jansen’s disclosure that its apparatus simultaneously performs anatomical imaging using ultrasound scan data and functional imaging using optical scan data indicates that the apparatus emits ultrasound waves and detects fluorescent light synchronously because images are generated upon simultaneous transmission of light and ultrasound wave signals and detection of return signals. (*Id.* at 5.)

Appellants contend that independent “claim 1 does not feature means for **simultaneously** effecting any function, but rather *means for synchronizing the emission of ultrasound, the detection of the emitted*

*fluorescent light and/or the generation of an image.*” (App. Br. 5.)

Additionally, Appellants assert that “even assuming *arguendo* but not conceding that ‘simultaneous’ and ‘synchronous’ have the same meaning, ... *Jansen, et al.* is deficient of the teaching of the simultaneity of any function.” (*Id.*) According to Appellants, while Jansen disclosed “a system and method for simultaneous **imaging** using ultrasonic data and optical data... [t]here is no disclosure of synchronizing the emission of ultrasound and the detection of fluorescent and/or the generation of an image.” (*Id.* at 7.)

We do not find Appellants’ contentions persuasive. In particular, we find that the Examiner correctly found that the Specification did not define the claim term “synchronizing” or the claim phrase “means for synchronizing the emission of ultrasound, the detection of the emitted fluorescent light and/or the generation of an image.” (*See* Ans. 4, 7.) Indeed, while Appellants assert that claim 1 does not feature means for simultaneously effecting any function, they fail to assert an alternative definition for the term synchronizing and further fail to provide a reference to the Specification defining or describing the claim phrase at issue. Rather, Appellants cite the portion of the Specification which merely states that “the apparatus can comprise a means for synchronizing the emission of ultrasound and/or the detection of fluorescent light and/or the generation of an image,” *i.e.*, the claim recitation itself. (Spec. 4.) Thus, we find that the Examiner provided a reasonable interpretation of the claim term and phrase at issue, as one of ordinary skill in the art would have. Further, we find that the Examiner provided sound reasoning, supported by the evidence, that Jansen’s simultaneous anatomical imaging using ultrasonic scan data and

functional imaging using optical data inherently involved a means for synchronizing the emission of ultrasound, the detection of the emitted fluorescent light and/or the generation of an image. (*See* Ans. 4-5 and 7-8.) Appellants have not established otherwise by merely asserting that “[t]here is no disclosure of synchronizing the emission of ultrasound and the detection of fluorescence and/or the generation of an image.” (App. Br. 7.) Moreover, contrary to Appellants’ assertion in the Reply Brief that a rejection for anticipation “requires the explicit disclosure of each feature of the claim” (Reply Br. 3-4) we conclude that the Examiner properly rejected the claimed invention by finding that Jansen set forth each and every element of the claim, in some instances expressly, and with respect to the means for synchronizing element, inherently. *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987)(“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or *inherently* described, in a single prior art reference.”)(Emphasis added).

Accordingly, we affirm the anticipation rejection of claims 1 and 3-11.

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

AFFIRMED

cdc