

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

Ex parte KARL HAKAN TORBJORN GARDENFORS, SVEN MATTISSON,  
and JACOBUS CORNELIS HAARTSEN

---

Appeal No. 2001-1912  
Application No. 08/803,392

---

ON BRIEF

---

Before RUGGIERO, DIXON, and BLANKENSHIP, Administrative Patent Judges.  
BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-6, 11, 12, 23, and 25-27.

We affirm-in-part.

BACKGROUND

The invention is directed to a radio transceiver that can be completely integrated into one IC chip. Claim 1 is reproduced below.

1. A radio on a single IC chip, comprising:

an antenna section for transmitting and receiving a plurality of high frequency signals, said radio including means for transmitting and receiving said plurality of high frequency signals in a time division duplex mode;

a single heterodyne down-conversion section coupled to said antenna section, for down-converting directly from a first high frequency signal of said plurality of high frequency signals to a low intermediate frequency signal;

a bandpass filter coupled to said down-conversion section;

a discriminator coupled to said bandpass filter for detecting a received data signal from said low intermediate frequency signal;

an up-conversion section coupled to said antenna section, for up-converting an information signal to a second high frequency signal of said plurality of high frequency signals, said up-conversion section comprising a portion of said down-conversion section;

a shaping filter coupled to an input of said up-conversion section; and

said down-conversion section, bandpass filter, discriminator, up-conversion section and shaping filter integrated into said single IC chip, wherein bandpass filtering operations are performed by components integrated into said single IC chip.

The examiner relies on the following references:

Saito	5,734,970	Mar. 31, 1998 (filed Feb. 7, 1996)
Okanobu	2,296,610	July 3, 1996

(Published UK Patent Application)

Appeal No. 2001-1912  
Application No. 08/803,392

Claims 1-6, 11, 12, and 25-27 stand rejected under 35 U.S.C. § 103 as being unpatentable over Okanobu.<sup>1</sup>

Claims 23 stands rejected under 35 U.S.C. § 103 as being unpatentable over Okanobu and Saito.<sup>2</sup>

Claims 7-10, 13, 24, 28, and 29 have been objected to as dependent upon a rejected base claim, but deemed drawn to allowable subject matter.

Claims 14-22 have been canceled.

We refer to the Final Rejection (Paper No. 12) and the Examiner's Answer (Paper No. 19) for a statement of the examiner's position and to the Brief (Paper No. 18) and the Reply Brief (Paper No. 20) for appellants' position with respect to the claims which stand rejected.

#### OPINION

In the rejection of claims 1-6, 11, 12, and 25-27 over Okanobu, the examiner finds that the reference does not show all the relevant elements on a single IC chip.

"Okanobu does disclose all but the filter being on the same IC." (Answer at 5.)

---

<sup>1</sup> Although the examiner's rejection includes claim 29 in the listing of claims, the Answer does not address the claim limitations. Moreover, the examiner has withdrawn the rejection of claim 28, from which claim 29 depends. We thus conclude that claim 29 is not now rejected.

<sup>2</sup> The Answer lists claims 20-23 as standing rejected. However, claims 20-22 have been canceled.

Okanobu discloses in Figure 1 and the paragraph bridging pages 8 and 9 that the elements making up the transmitting and receiving apparatus -- except for bandpass filter 3 and the oscillating coil of voltage controlled oscillator VCO311 -- may be formed in a single IC. However, the examiner concludes that it would have been obvious to have integrated all elements into a single IC. The conclusion relies on the finding that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art, referring to "Howard v. Detroit Stove Works, 150 U.S. 164 (1893)." (Answer at 5.)

In appellants' view (Brief at 13-14), a functional communication device cannot be designed by simply selecting components and integrating them onto a single IC chip. Appellants' arguments are consistent with the instant specification (e.g., pp. 10-16), which describes appellants' modifications to prior art versions of radio receivers and transmitters such that required elements may be fabricated on a single chip.

Our reviewing court looks with disfavor on per se rules of obviousness. See, e.g., In re Ochiai, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995) ("[R]eliance on per se rules of obviousness is legally incorrect and must cease."). While we might agree with the examiner to the extent that forming articles in one piece may be considered obvious in certain simple mechanical arts, we do not consider the rule of obviousness to extend to fabrication of circuit elements in semiconductor packages, in view of appellants' arguments, appellants' disclosure, and the teachings of Okanobu.

Instant claim 1 requires, inter alia, that the bandpass filter coupled to the down-conversion section is integrated into a single IC chip with the down-conversion section, discriminator, up-conversion section, and shaping filter. We thus do not sustain the rejection of claim 1, nor that of claims 2-6, 11, and 12 depending therefrom. We also note our agreement with appellants (Brief at 15-16; Reply Brief at 2-3) that the rejection does not account for all limitations of instant claim 1, and therefore further falls short in setting out a prima facie case for obviousness.

Appellants argue that claim 25 and the claims depending therefrom (i.e., 26 and 27) are patentable because the art does not disclose or suggest use of a frequency hopping scheme to provide interference immunity in connection with a radio on a single IC chip. (Brief at 23-24.) The examiner cites The Communications Handbook<sup>3</sup> in support of official notice that various types of communications schemes for sharing bandwidth in data communications were known (Answer at 5), including the “frequency hopping” scheme as recited in claim 25 (id. at 9-10). In view of the known advantages, the examiner concludes that it would have been obvious to use the scheme in order to share a communication spectrum with other transceivers (id. at 5).

Appellants respond (Reply Brief at 8) that the cited references fail to suggest the use of frequency hopping in combination with the other elements of the claims. Further, appellants allege that frequency hopping is not necessary in systems that rely upon

---

<sup>3</sup> Jerry D. Gibson, Editor-in-Chief, CRC Press, pp. 87-93 (1997).

Appeal No. 2001-1912  
Application No. 08/803,392

high frequency detection or that utilize low pass filtering of baseband signals “as in the device disclosed in the Okanobu reference.”

However, appellants’ position is not responsive to the rejection before us. In particular, appellants do not rebut the examiner’s reasoning with respect to why the artisan would have considered obvious the use of a frequency hopping scheme. While we cannot say with certainty that appellants’ allegations with respect to why the artisan may have considered “frequency hopping” unnecessary for a device as disclosed by Okanobu are incorrect, appellants do not point out anything in the instant disclosure or references of record lending support to the arguments. Moreover, appellants’ position is based on mere attorney arguments, rather than supported by rebuttal evidence. Arguments of counsel are not evidence. See, e.g., Meitzner v. Mindick, 549 F.2d 775, 782, 193 USPQ 17, 22 (CCPA 1977); In re Pearson, 494 F.2d 1399, 1405, 181 USPQ 641, 646 (CCPA 1974).

Although appellants disclose a radio transceiver on a single IC chip, appellants’ invention does not require that all elements be on the same chip. (See, e.g., specification at 20, ll. 13-21.) The only reference to a “single IC chip” in claim 25 appears in the preamble; we find nothing in the body of the claim requiring that the elements be on the same chip. We therefore interpret “on a single IC chip” as recited in claim 25 to represent mere intended use, as opposed to a limitation of the subject matter. The preamble of a claim does not limit the scope of the claim when it merely

Appeal No. 2001-1912  
Application No. 08/803,392

states a purpose or intended use of the invention. In re Paulsen, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

In view of the evidence and reasoning provided by the examiner, and appellants' arguments in response, we conclude that the examiner has established a case for prima facie obviousness of the subject matter as a whole of instant claim 25, which appellants have failed to rebut. Since appellants have not provided separate arguments for claim 26 or claim 27, we sustain the rejection of claims 25 through 27 under 35 U.S.C. § 103 as being unpatentable over Okanobu.

The section 103 rejection of claim 23 adds Saito to the teachings of Okanobu (Answer at 6). Appellants argue (Brief at 21) that the references fail to teach or suggest providing the variable controlled oscillator integrated into a single IC chip, without components for the oscillator external to the chip. As noted previously, Okanobu teaches that a portion of the components for VCO311 are external to the IC. In appellants' disclosed invention (specification at 20), bond-wire inductors are used as resonators to enable fabrication on a single chip.

In response to appellants' position, the examiner relies on a per se rule of obviousness that does not apply in the instant case. (See Answer at 9.) In the absence of a teaching from the prior art in support of the examiner's position, we do not sustain the rejection of claim 23.

Appeal No. 2001-1912  
Application No. 08/803,392

CONCLUSION

The rejection of claims 25-27 under 35 U.S.C. § 103 is affirmed. The rejection of claims 1-6, 11, 12, and 23 under 35 U.S.C. § 103 is reversed. The examiner's decision in rejecting claims 1-6, 11, 12, 23, and 25-27 is thus affirmed-in-part.

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

AFFIRMED-IN-PART

JOSEPH F. RUGGIERO	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
JOSEPH L. DIXON	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
	)	
HOWARD B. BLANKENSHIP	)	
Administrative Patent Judge	)	

Appeal No. 2001-1912  
Application No. 08/803,392

JENKENS & GILCHRIST, PC  
1445 ROSS AVENUE  
SUITE 3200  
DALLAS , TX 75202