

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT A. ROSEN, KAPRIEL V. KRIKORIAN, and IRWIN L. NEWBERG

Appeal No. 2006-0496
Application No. 10/126,569

ON BRIEF

Before KRASS, OWENS, 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 1-41, which are all the claims in the application.

We affirm-in-part.

BACKGROUND

The invention relates to repetitive waveform generators that can be employed in radio frequency (RF) applications such as radar. Representative claims 1 and 12 are reproduced below.

1. A repetitive waveform generator comprising:
 - a circuit for generating an optical signal having a predetermined duration;
 - a first optical coupler responsive to said optical signal and an optical feedback signal;
 - an optical delay circuit responsive to said first optical coupler and providing a delayed version of said first coupler output as an optical delay circuit output; and
 - a second coupler responsive to said optical delay circuit output for providing a waveform generator output, and for providing a portion of said optical delay circuit output as said optical feedback signal to said first coupler;
 - wherein said first coupler provides said feedback signal to said optical delay circuit; and
 - whereby said waveform generator output comprises a replica of said input optical signal and a series of copies of said replica.

12. A repetitive waveform generator comprising:
 - a circuit for generating an optical signal having a predetermined duration;
 - and
 - means for recirculating said optical signal to generate repetitions of said optical signal.

Appeal No. 2006-0496
Application No. 10/126,569

The examiner relies on the following references:

Newton et al. (Newton)	4,479,701	Oct. 30, 1984
Yamauchi et al. (Yamauchi)	US 6,535,678 B1	Mar. 18, 2003 (PCT filed Mar. 28, 2000)

Claims 12 and 33 stand rejected under 35 U.S.C. § 102 as being anticipated by Newton.

Claims 1-11, 13-29, and 34-41 stand rejected under 35 U.S.C. § 103 as being unpatentable over Newton.

Claims 30-32 stand rejected under 35 U.S.C. § 103 as being unpatentable over Newton and Yamauchi.

We refer to the Final Rejection (mailed Mar. 1, 2005) and the Examiner's Answer (mailed Jul. 1, 2005) for a statement of the examiner's position and to the Brief (filed Jun. 1, 2005) and the Reply Brief (filed Jul. 27, 2005) for appellants' position with respect to the claims which stand rejected.

OPINION

Grouping of Claims

We will consider the claims in groups as argued by appellants in the Brief. See 37 CFR § 41.37(c)(1)(vii) (Sep. 13, 2004).

Claims 12, 33 -- Section 102 rejection over Newton

Appellants argue (Brief at 14-15), with respect to claim 12, that Newton fails to disclose a circuit for generating an optical signal having a predetermined duration. Appellants acknowledge that Newton discloses a laser light source 150, a modulator 152 (Figs. 5 and 8), and an input signal 160 (Fig. 6).

Newton discloses an input signal 260 of modulated light pulses shown in Figure 9, which is identical to the input signal 160 shown in Figure 6. The input signal is supplied to the input end 132 of the optical fiber 130 at time T_1 from laser light source 150 and modulator 152. Col. 8, l. 62 - col. 9, l. 3. The duration of the input signal 260 is predetermined to be shorter than the delay time provided by the loop 140. Col. 9, l. 64 - col. 10, l. 8; Figs. 6 and 9. We therefore sustain the rejection of claim 12.

Appellants argue that Newton fails to teach the claim 33 requirement of an optical switch for controlling the output optical signal to have the recited duration. (Brief at 15-16). In the examiner's view, the evanescent field coupling in the optical couplers described by Newton meets the requirements of an optical switch. "By transferring the signal between strands, the signal is moved from one strand from another, for example, from [strand] 12a to strand 12b." (Answer at 10.) We agree. "When the signal is moved from [strand] 12a to 12b, the signal is transferred or switched to the other strand." (Id.)

Even if we agree that the signal is "switched" to the other strand, the rejection fails to show that transference of the signal to another strand represents any type of

Appeal No. 2006-0496
Application No. 10/126,569

“switch.” More important, there is no showing that the artisan would regard evanescent field coupling, or an optical coupler, as described by Newton to constitute an “optical switch.” We therefore cannot sustain the rejection of claim 33.

Claims 1, 2, 13, 14 -- Section 103 rejection over Newton

Instant claims 1 and 13 recite “an optical delay circuit” and “a fiber optic delay circuit,” respectively. Appellants submit that reliance on language from the specification to show that the claim language would have been obvious amounts to improper hindsight reconstruction. (Brief at 18-19.)

Reference to the specification, in this instance, relates to claim interpretation rather than obviousness. The “optical delay circuit” or “fiber optic delay circuit,” as disclosed, comprises fiber optic delay line 15 and optical switch 16 (Fig. 2). (Brief at 2-3; Spec. at ¶¶ 14-17.) The circuit, as disclosed and claimed, provides a delayed version of the first coupler output as a delay circuit output. Claims 1 and 13 do not specify what structure the respective circuits may require. Under the broadest reasonable interpretation of the terms, loop 140 (Newton col. 7, ll. 23-26; col. 9, ll. 24-26; Fig. 8) is a delay circuit within the meaning of the claims. Claims are to be given their broadest reasonable interpretation during prosecution, and the scope of a claim cannot be narrowed by reading disclosed limitations into the claim. See In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); In re Zletz, 893 F.2d 319, 321, 13

Appeal No. 2006-0496
Application No. 10/126,569

USPQ2d 1320, 1322 (Fed. Cir. 1989); In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

Appellants' further argument in defense of the claims is that Newton fails to teach or suggest a circuit for generating an optical signal having a predetermined duration, or receiving an input optical signal of limited duration that is to be repeated a predetermined number of times. (Brief at 19-20.) As we have noted supra in relation to the § 102 rejection over Newton, the reference discloses a circuit for generating an optical signal having a predetermined duration. Further, the duration of the input signal 260 is of a limited duration; i.e., at least shorter than the delay time provided by the loop 140. Newton col. 9, l. 64 - col. 10, l. 8; Fig. 9.

Since we are not persuaded that the claims have been rejected in error, we sustain the § 103 rejection of claims 1, 2, 13, and 14 as being unpatentable over Newton.

Claims 24-29 -- Section 103 rejection over Newton

Appellants submit that the examiner has failed to identify where Newton might disclose or suggest an RF waveform generator for generating an RF waveform signal, or an optical modulator for generating an input optical signal responsive to the RF waveform signal, as required by independent claims 24 and 27. (Brief at 23-24.)

The examiner contends that although Newton fails to "specifically" disclose an RF waveform generation, the reference discloses that the recirculating memory may be

Appeal No. 2006-0496
Application No. 10/126,569

used in microwave signaled electronics. The examiner submits that since microwave signals are RF signals, it would have been obvious to have used an RF waveform generator. (Answer at 5.)

The rejection does not point out where Newton discloses that the recirculating memory may be used in “microwave signaled electronics.” Newton discusses, in column 1, prior art applications that use recirculating memory devices, including the temporary storage and retrieval of broadband microwave signals in electronic counter-measures used to jam radar signals or to project false radar images.

The claims, however, require a first and a second optical coupler, as disclosed in the Figure 8 embodiment of Newton. The rejection does not identify any teaching, suggestion, or motivation from the prior art for using the arrangement of Figure 8 as a recirculating memory device for microwave signaled electronics, even assuming that such an application would require an RF waveform generator for generating an RF waveform signal as claimed.

We thus agree with appellants to the extent that the evidentiary basis for the rejection of claims 24 through 29 is deficient on this record. We do not sustain the § 103 of the claims over Newton.

Claims 30-32 -- Section 103 rejection over Newton and Yamauchi

We do not sustain the § 103 rejection of the claims as being unpatentable over Newton and Yamauchi. The rejection relies on Newton for the teaching of an “RF

waveform generator.” (Answer at 7.) Instant claim 30 requires an optical detector providing an RF repetitive waveform output responsive to the optical output signal.

As we have noted in the discussion of claims 24 through 29, *supra*, the rejection fails to demonstrate the obviousness of a first and second optical coupler (Newton Fig. 8) having an RF waveform input. As such, the instant rejection fails to show *prima facie* obviousness of the subject matter as a whole of independent claim 30.

Claims 35-37 -- Section 103 rejection over Newton

The examiner admits, in the new ground of rejection applied against claims 30 through 32, that Newton fails to “specifically” disclose an optical detector providing an output responsive to the output signal. (Answer at 8.) The new ground relies on Yamauchi for the teaching of an optical detector.

Why the Newton reference alone was applied against independent claim 35 is unknown. The claim requires an optical detector for detecting the delay line output signal and providing an output RF signal. Further, the claim requires an optical switch having an input coupled to an RF modulated optical signal and an output for providing an optical signal pulse with a predetermined duration and a waveform. As we have noted in relation to the rejection of claim 33, *supra*, Newton at the least has not been shown as describing an “optical switch” within the meaning of the claims.

Appeal No. 2006-0496
Application No. 10/126,569

We conclude that a prima facie case of obviousness has not been established for the subject matter as a whole of independent claim 35. We do not sustain the § 103 rejection of claim 35, nor of depending claims 36 and 37, over Newton.

Claims 3, 4, 15, 16 -- Section 103 rejection over Newton

Appellants argue that Newton fails to describe that the input optical signal comprises a “carrier signal.” (Brief at 20.)

Appellants’ specification (¶ 13) teaches that the RF modulated optical signal provided by the optical modulator comprises an RF signal modulated on an optical carrier. Newton teaches modulating a signal onto the light input to the device (col. 10, ll. 3-8). Input signal 260 comprises modulated light pulses as shown in Figure 9 (col. 8, l. 62 - col. 9, l. 3).

Newton thus discloses that the input optical signal comprises a carrier signal; i.e., an optical carrier signal onto which is modulated the binary signal described by the reference (Fig. 9; col. 10, ll. 17-21). We therefore sustain the § 103 rejection of claims 3, 4, 15, and 16 as being unpatentable over Newton.

Claims 5-11, 17-23, 34, and 38-41 -- Section 103 rejection over Newton

Dependent claims 5-11, 17-23, and 38-41 require particular waveform signals. We agree with appellants that the rejection based on an alleged failure to show

Appeal No. 2006-0496
Application No. 10/126,569

“criticality,” or an alleged failure to “distinguish the novelty” of the claimed waveform signals, represents an improper standard for showing prima facie obviousness.

When obviousness is based on a particular prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference.

B.F. Goodrich Co. v. Aircraft Braking Sys. Corp., 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996). The rejection of claims 5-11, 17-23, and 38-41 improperly places the burden on appellants, without establishing an initial case for prima facie obviousness. Moreover, with respect to claims 38 through 41, we have not sustained the rejection of base claim 24 or 27. Claim 34 incorporates the limitations of claim 33. We have not sustained the rejection of claim 33.

We thus do not sustain the § 103 rejection of claims 5-11, 17-23, 34, and 38-41 over Newton.

CONCLUSION

The rejection of claims 1-41 is affirmed with respect to claims 1-4 and 12-16, but reversed with respect to claims 5-11 and 17-41. The examiner’s decision is thus affirmed-in-part.

Appeal No. 2006-0496
Application No. 10/126,569

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a). See 37 CFR § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

ERROL A. KRASS)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
TERRY J. OWENS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
HOWARD B. BLANKENSHIP)	
Administrative Patent Judge)	

Appeal No. 2006-0496
Application No. 10/126,569

LEONARD A. ALKOV
RAYTHEON COMPANY
P.O. BOX 902 (E4/N119)
EL SEGUNDO, CA 90245-0902