Paper No. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WAI LAING LEE,
DAN KASHA,
and AXEL THOMSEN

Appeal No. 2001-0740
Application 09/054,415[1]

ON BRIEF

Before BARRETT, DIXON, and LEVY, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-18.

We affirm-in-part.

[1] Application for patent filed April 3, 1998, entitled "Power Saving Amplifier."

BACKGROUND

The disclosed invention relates to an amplifier which utilizes switching of a variable power source to provide different levels of power to the amplifier during different portions of an operational cycle, such as providing high power during an expected slewing phase when an amplifier's output changes at its maximum rate and a reduced power during less demanding phases, such as during settling or holding. By increasing maximum output current during the period when slew is likely to occur, the current in the amplifier during settling can be decreased, which results in a net power savings (spec. at 7).

Claim 1 is reproduced below.

> 1. An amplifier circuit comprising a power control circuit configured to provide relatively high power to an active element during at least one portion of an amplifier's operational cycle and to provide relatively low power otherwise.

The examiner relies on the following references:

Mizuide	4,806,791	February 21, 1989
Wang et al. (Wang)	5,691,720	November 25, 1997

Claims 15 and 16 stand rejected under 35 U.S.C. § 112, first paragraph, as based on a lack of enabling disclosure.

Claims 1-8, 11, 15, 17, and 18 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellants regard as their invention.

Claims 1, 5, 7, 8, 10, 12, 13, and 15-18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mizuide.

Claims 1-4 and 9-18 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Wang.

Claims 2-4, 6, 9, 11, and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mizuide.

Claims 5-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang.

We refer to the final rejection (Paper No. 13) (pages referred to as "FR__") and the examiner's answer (Paper No. 23) (pages referred to as "EA__") for a statement of the examiner's rejection, and to the appeal brief (Paper No. 22) (pages referred to as "Br__") for a statement of appellants' arguments thereagainst.

OPINION

35 U.S.C. § 112, first paragraph

The examiner states that "[w]hen or how the 'slew is expected ... irrespective of actual signal level' or 'activity is expected' is determined are deemed critical or essential to the practice of the invention" (EA3), but are not enabled by the disclosure. It is stated that there is no indication how or what provides the complementary control signals "p" and "pb" in the control circuit in Fig. 9 so it is possible that the signals could be provided at inappropriate times (EA4).

Appellants respond that one of ordinary skill in the art would know when and how to activate the high power state, for example, "one would know because of the clocking of the sample and hold circuits when slewing would be expected on the amplifier of Figure 11" (Br7).

We agree with appellants that one of ordinary skill in the art would know when slewing is expected because this is a clocked circuit. For example, in Fig. 2 one would expect slewing at the time when switches 2 are closed and switches 1 are opened and the charge from C_{in} is transferred to C_{int} (spec. at 7-8). We consider that one skilled in the art would have known how to provide signals "p" and "pb" since these are simply complementary signals and the time when they are to be applied is known. The rejection of claims 15 and 16 under § 112, first paragraph, is reversed.

35 U.S.C. § 112, second paragraph

Claims 1-8

The examiner states that when the "low power" is provided to the active element in claim 1 is misleading (EA4).

Appellants respond that the examiner's interpretation of the claim language is unrealistic (Br8).

The examiner responds that "an amplifier's operational cycle" is not described in claim 1 and, so, it can include times

when the apparatus is activated, when it is completely powered down, and when it is in a standby mode, which require high, no, and low power, respectively (EA11).

Appellants disclose the "operational cycle" to correspond to one cycle of SLEW/SETTLE/HOLD as shown in appellants' Figs. 3-4. However, this is not specifically recited in claim 1. A "cycle" is defined as a single complete execution of a periodically repeated phenomenon (e.g., a year constitutes a cycle of the seasons) or a periodically repeated sequence of events (e.g., the cycle of birth, growth, and death). We agree with the examiner that an "operational cycle" is broad enough to read on the on/off cycle of a circuit, but do not agree with the examiner's speculation that the circuit would have a standby mode using low power. Low power must be applied when the circuit is operating. The examiner asks if low power is provided when the circuit is powered down or placed into a standby condition, but none of these conditions is claimed. Thus, the examiner seems to be trying to invent reasons why possibilities outside of the claim language might make the claim is indefinite. The rejection of claim 1, and dependent claims 2-8, on this basis is reversed.

Claim 3

The examiner states that the "two inputs" of claim 3 are not clearly identified with anything (EA4).

Appellants respond that claim 3 depends on claim 2, which recites that the active element is an operational amplifier (Br8). Operational amplifiers typically have two inputs. Thus, claim 3 addresses configurations as shown in Fig. 11 (Br8).

The examiner responds that claim 3 does not identify the inputs with any of the inputs to the amplifier circuit, the power control circuit, and the operational amplifier (EA11).

Claim 3, when properly read, requires the "output" and the "two inputs" to be elements of the operational amplifier because the claim is directed to the connection of a capacitor to the operational amplifier. This is not indefinite. The rejection of claim 3 is reversed.

Claim 11

The examiner states that it is not clear in claim 11, lines 2-4, how the first through third active devices relate to "an active device" recited in the preamble or how "an active device" on line 7 relates to "an active device" in the preamble or to the first-third active devices on lines 2-4 (EA4). The examiner states that the series connection of the first current source, first active device, and second active device is confusing (EA4-5).

Appellants refer to Fig. 7 as exemplary of the structure recited by claim 11 (Br9). It is argued that "[t]he Examiner

appears to be tying himself up in needless symantic [sic, semantic] issues that have not relationship to either the disclosure nor [sic, or] to the real world" (Br9).

We have considered the examiner's reasons but are not persuaded of any indefiniteness problem with claim 11. Claim 11 reads on Fig. 7 in a straightforward manner. The rejection of claim 11 is reversed.

Claims 15 (and 12)

The examiner states that claim 15 could be incomplete since it recites "steps" on line 1, but then only recites one step for increasing current (EA5).

Appellants argue that claim 15 is not incomplete and that the method is clear, but offer to amend "steps" to be --step-- (Br10).

The examiner indicates that changing "steps" to --step-- would be acceptable to resolve the problem (EA12).

We agree with the examiner that claim 15 is technically indefinite because the plural "steps" in the preamble does not agree with the single step in the body. Thus, we will sustain the rejection of claim 15. The problem can be overcome by the amendment proposed by appellants. It is noted that claim 12 has the same problem, although it was not rejected.

Claim 17

The examiner states that it is not clear in claim 17, line 3, how "one current mirror" relates to the "two current mirrors" recited on line 2. The examiner considers the phrase "without adversely affecting the amplifier" on lines 3-4 of claim 17 to be vague and indefinite, stating (EA5): "Since the amplifier is a physical entity already fabricated, how would it be affected?"

Appellants argue that it is clear from the context that the one current mirror switched in and out is one of the two current mirrors (Br10).

The examiner responds that since amplifiers can have more than two current mirrors, the "one current mirror" does not necessarily have to be one of the "two current mirrors" (EA12).

We agree with appellants. In addition, we note that the limitation "without adversely affecting the amplifier" is broad but not indefinite. An amplifier can be "adversely affected" by being damaged with too much current. The rejection of claim 17 is reversed.

Claim 18

The examiner states that it is not clear in claim 18 how "an amplifier's operational cycle" in line 4 relates to the "active element" recited on both lines 2 and 3 (EA5).

Appellants argue that the claim is broad but the language is not indefinite (Br11).

We agree with appellants. The amplifier could be part of the active element, or vice versa, or the amplifier and active element could be completely unrelated devices except for the broad relationship between the amplifier's operational cycle and the selective activation of one of the sources. The rejection of claim 18 is reversed.

35 U.S.C. § 102(b) - Mizuide

Appellants argue that Mizuide is directed to a differential comparator with a hysteresis response and is not directed to an amplifier as claimed (Br11). It is argued that there is no teaching or suggestion in Mizuide of changing the power available to an amplifier during different phases of operation (Br11). Appellants then argue that selected limitations of the rejected claims are not disclosed in Mizuide (Br11-13).

The examiner states that Mizuide is one type of amplifier, a differential amplifier (EA14). The examiner further states that although Mizuide does not specifically disclose changing power, one of ordinary skill in the art would recognize that a change in current relates to a change in power (EA14).

It appears that the examiner has applied Mizuide as a way of showing that the claims are so broad that they read on subject

matter which is completely different than what has been disclosed. The problem is that it is not easy to see how the claims read on Mizuide and the claim language often does not fit. Nevertheless, the rejection of several claims is justified. For the discussion of the claims, we find that transistors 1 and 3 in Mizuide are current amplifiers. We also agree with the examiner's finding that a change in current is a change in power.

Claims 1, 5, 7, and 8

Appellants argue that Mizuide does not teach providing "relatively high power to an active element during at least one portion of an amplifier's operational cycle and to provide relatively low power otherwise" as required by claim 1 (Br13).

The examiner states that 67, 61, 55 in Mizuide can be deemed a power control circuit which provides a high power (current flowing through both transistors 51 and 57) during a portion of the cycle, and a low power (current flowing only through 55) otherwise (EA14-15).

The examiner interprets "an amplifier's operational cycle" as the time when the overall device is operating. Appellants do not respond to this interpretation. We agree with the examiner that an "operational cycle" is broad enough to read on the time when a circuit is in operation. Claim 1 does not require the high power to be applied at any specific time during the cycle;

e.g., a time when slew is expected. However, there is nothing in Mizuide that positively requires a change in current during operation; this would depend on V_1 and V_2 and whether V_1 is increased or V_2 is decreased (col. 7, lines 20-52), which may or may not happen. Therefore, it cannot be said that Mizuide inherently provides high power at one portion of an operational cycle and low power otherwise. The anticipation rejection of claims 1, 5, 7, and 8 over Mizuide is reversed.

Claim 10

Appellant argues that Mizuide does not show "an active element, connected to said current sources so that only one current source is active during an operational phase when power requirements are relatively low and so that both current sources are active during an operational phase when power requirements are relatively high" as recited in claim 10 (Br12).

The examiner finds that Mizuide's 1, 3, 7, 9 can be deemed an active element and current mirrors 55 and 61 can be deemed two current sources where current source 55 is active during low power requirement phases and both current sources are active during high power requirement phases (FR8-9; EA15).

Claim 10 does not recite any "cycle" limitations or any "amplifier" limitations on the nature of the active element. Claim 10 is a very broad claim and appellants have not shown

error in the examiner's reading of claim 10 onto Mizuide. The rejection of claim 10 is therefore sustained.

Claim 12

The examiner finds that activation of mirror 61 acts to steer current supplied by a current source (FR9).

Appellants argue that Mizuide does not show "steering current from a current source away from one part of a current mirror to cause said current mirror to switch from one state to a second state" as recited in claim 12 (Br12).

The examiner responds that, taking current mirrors 55 and 61 as a current source, current is steered away from current mirror 61 by current mirror 67 to switch from one state to a second state, referring to column 7, lines 34-36 and 41-43 (EA15).

Appellants do not show the error in the examiner's position. Nevertheless, the examiner's interpretation of the claim does not seem to fit Mizuide. Current mirror 61 cannot be both a current source and a current mirror as stated by the examiner. The current I_0 is steered into the current mirror 67 when V_1 is increased to turn on mirror circuits 67 and 61 (col. 7, lines 33-39), which is one state, and flows in the negative direction when V_2 is decreased to tun off the mirror circuits 67 and 61 (col. 4, lines 40-47), which is a second state. It is not reasonable or accurate to say that current from current mirror 55

is steered "away from" current mirror 61, as claimed, or that current I_0 is steered "away from" current mirror 67. The rejection of claim 12 is reversed.

Claim 13

Appellants argue that Mizuide does not show "selectively activating a second power source in conjunction with a first power source during part of a recurring time interval" as recited in claim 13 (Br12).

The examiner responds that second power source 61 is selectively activated with first power source 55, which is always on, during a part of a recurring interval, referring to column 7, lines 34-36 and 41-43 (EA15).

While we agree with the examiner's finding that current mirror 61 being activated in conjunction with current mirror 55 meets the limitation of "selectively activating a second power source in conjunction with a first power source," we do not find "a recurring time interval" disclosed in Mizuide. We interpret "a recurring time interval" to require a time interval that is repeated, which is not shown in Mizuide, and the examiner has not offered any interpretation that would be met by Mizuide. The rejection of claim 13 is reversed.

Claim 15

Appellants argue that Mizuide does not show "during an operational phase when slew is expected, increasing current available to the amplifier irrespective of actual signal level applied to the amplifier" as recited in claim 15 (Br12).

The examiner responds that current is increased to amplifier 1, 3, 7, 9 when slewing (a transition) occurs, referring to column 7, lines 36-37 (EA15).

Mizuide is tied to the actual voltages V_1 and V_2, which can occur at any time. Mizuide is not clocked. Thus, there is no time "when slew is expected" and no teaching of increasing current during this time. Further, if "slew" is taken to be a change in voltage level, then slew occurs when voltages V_1 or V_2 change, but a change in voltages may result in decreasing current available to transistors 1 and 3, not just an increase. The rejection of claim 15 is reversed.

Claim 16

Appellants argue that Mizuide does not show "decreasing current available to the amplifier during an operational phase when little activity is expected" as recited in claim 16 (Br12).

The examiner responds that current available to amplifier 1, 3, 7, 9 is decreased when little activity occurs and 61 is turned off, referring to column 7, lines 43-44 (EA15).

Mizuide is tied to the actual voltages V_1 and V_2, which can occur at any time. Mizuide is not clocked. Thus, there is no time "when little activity is expected" and no teaching of decreasing current at this time. The rejection of claim 16 is reversed.

Claim 17

Appellants argue that Mizuide does not show "using two current mirrors" to provide power to the amplifier and "switching one current mirror in or out to control power to the amplifier without adversely affecting the amplifier" as recited in claim 17 (Br12).

The examiner responds that current mirror 61 is the one current mirror of two current mirrors 55, 61 which switches power (current) to amplifier 1, 3, 7, 9, referring to column 7, lines 36-37 and 43-44 (EA15-16).

Appellants have not shown error in the examiner's position. Transistors 1 and 3 are broadly considered current amplifiers. Current mirror 55 is always on (col. 7, line 23). Current mirror 61 is switched in and out to control the emitter current of transistors 1 and 3 (col. 7, lines 21-32) and, hence, the power. The limitation of "without adversely affecting the amplifier" is so broad that it is met by current that does not destroy the transistors, which is implicit in Mizuide. Claim 17

contains no limitations about cycles or recurring time periods. The rejection of claim 17 is sustained.

Claim 18

Appellants argue that Mizuide does not show "at least two sources of current to said active element in which one of the sources is selectively activated during at least one portion of an amplifier's operational cycle and inactive otherwise" as recited in claim 18 (Br13).

The examiner responds that current mirror 61 of at least two current mirrors 55, 61 is selectively activated during a portion of an amplifier's operational stage, where the amplifier (active element) comprises elements 1, 3, 7, 9, referring to column 7, lines 36-37 and 43-44 (EA16).

As discussed in connection with claim 1, there is nothing in Mizuide that positively requires a change in current during operation; this would depend on V_1 and V_2 and whether V_1 is increased or V_2 is decreased (col. 7, lines 20-52), which may or may not happen. Therefore, it cannot be said that Mizuide inherently "selectively activates" one current source during one portion of an operational cycle. The anticipation rejection of claim 18 is reversed.

35 U.S.C. § 103(a) over Mizuide

Claims 2-4 and 6

The obviousness rejection of claims 2-4 and 6 over Mizuide does not cure the deficiencies with respect to claim 1. Thus, the rejection of claims 2-4 and 6 is also reversed.

Claim 9

Appellants argue that Mizuide does not disclose "a power control circuit having two output levels connected to said active element and selectively providing one of said levels to said element during a portion of its operating time and providing another level to said element during another portion of its operating time" (Br17).

The examiner states that Mizuide will provide a differential output with respect to inputs V_1 and V_2 and one of ordinary skill in the art would have known that digital input signals could be provided (EA21).

We disagree with the examiner. The purpose of Mizuide is to provide a differential comparator with hysteresis characteristics. The use of digital input signals makes no sense in the operation of such a differential comparator. The rejection of claim 9 is reversed.

Claim 11

Appellants argue that Mizuide does not teach or suggest the relationship among current sources and active devices recited in claim 11 (Br17).

The examiner states that it would have been obvious to replace the bipolar transistors in Mizuide with field effect transistors (FETs) to improve ease of manufacturing, which structure would then satisfy the structural limitations (EA21).

The examiner's reasoning is based on nothing but hindsight. Moreover, it is just not clear that replacing bipolar transistors with FETs will meet the claimed structure. The rejection of claim 11 is reversed.

Claim 14

Appellants argue that Mizuide does not disclose a "clocked amplifier" and fails to disclose the step of "providing different power levels to said amplifier during at least two respective time intervals separated by clock signals" (Br17-18).

The examiner states that when used within an operational amplifier with a switched capacitor input circuit, the overall circuit could be deemed a clocked amplifier having different power levels (EA21).

The examiner provides no reference or motivation for using the differential comparator with hysteresis characteristics of

Mizuide in a switched capacitor input circuit. The rejection of claim 14 is reversed.

35 U.S.C. § 102(e) over Wang

The examiner states that the claims have been given their broadest reasonable interpretation and that when claims are broadly written, confusing, or misleading, they can be interpreted in ways different than what the appellants intended (EA13).

Appellants argue that Wang teaches that the user may select a resolution and that the resolution selected may require different levels of bias current depending on the selection, but once a particular resolution is selected, that resolution remains in effect so that the power allocation remains fixed until a different resolution is selected (Br13). This is the only reason given by appellants in support of the otherwise bare assertions that various limitations of claims 1 and 10-18 are not shown (additional arguments are provided for claim 9).

We note that appellants do not contest that Wang implicitly teaches the user selecting different resolutions at different times during operation.

Claims 1-4

Appellants argue that Wang does not teach providing "relatively high power to an active element during at least one portion of an amplifier's operational cycle and to provide relatively low power otherwise" as required by claim 1 (Br13).

The examiner states that high power 4I is applied during one part of an operational cycle, i.e., when resolution control is 16, and low power I and 2I is applied otherwise (EA17).

The examiner interprets "an amplifier's operational cycle" as the time when the overall device is operating. Appellants do not respond to this interpretation. We agree with the examiner that an "operational cycle" is broad enough to read on the time when a circuit is in operation. Claim 1 does not require the high power to be applied at any specific time during the cycle; e.g., a time when slew is expected. Appellants do not contest that Wang discloses the user selecting different resolutions at different times during operation, so the high power current 4I is applied at some time during operation and relatively low power 2I or I is applied otherwise. The rejection of claims 1-4 over Wang is sustained.

Claim 9

Appellant argues that Wang does not show "a power control circuit having two output levels connected to said active element and selectively providing one of said levels to said element only

during a portion of its operating time and providing another level to said element during another portion of its operating time" as recited in claim 9 (Br13).

The examiner repeats the reasoning given for claim 1 (EA17).

Claim 9 recites two different power output levels connected to an active element, each applied during a "portion of its operating time." We agree with the examiner that a "portion of its operating time" is a portion of the operational time when one bias current level is applied. Appellants do not contest that Wang discloses the user selecting different resolutions at different times during operation, so this limitation is met.

Appellants further argue (Br15) that the examiner erred in finding that "[d]ue to switched capacitor input circuit 2, the input to amplifier 5 [in Wang] can be deemed a digital signal, thus anticipating claim 9" (FR9). It is argued that the output of the switched capacitor input circuit 2 is a sampled analog value and not a digital value.

Although appellants do not correlate the arguments to any claim language, it appears that appellants argue that Wang does not teach an amplifier having "an input receiving a digital signal." We agree that the input to amplifier 5 in Wang is not a "digital signal," i.e., a signal having only two possible values. Thus, the rejection of claim 9 is reversed.

Claim 10

The examiner finds that current sources 67D, 68D of Fig. 2 is active during relatively low operation phases and current sources 67E, 67F, 68E, 68F are activated during higher operational phases, thus anticipating claim 10 (FR9-10).

Appellants' asserts that Wang does not show "an active element, connected to said current sources so that only one current source is active during an operation phase when power requirements are relatively low and so that both current sources are active during an operational phase when power requirements are relatively high" as recited in claim 10 (Br13-14).

The examiner finds that one current source is active when a low power requirement (e.g., I or 2I) is required and at least two current sources are active when high power requirements (i.e., 4I) are required (EA17).

Wang teaches two current sources that are active under different power requirements as set by resolution select input 17. Claim 10 is broad and does not positively recite that the conditions of "when power requirements are relatively low" and "when power requirements are relatively high" are determined automatically or occur during a part of a cycle. The user can determine when the power requirements are high and low. Therefore, claim 10 does not define over Wang's teaching of a user setting the resolution select input 17 to provide a low

current from one current source when power requirements are relatively low and to provide a higher current from two current sources when power requirements are relatively high. The rejection of claim 10 is sustained.

Claim 11

The examiner reads the "first current source" on current sources 34, 41 in Fig. 2; the "first active device" on FET 47; the "second active device" on MOSFET 46; the "second constant current source" on MOSFETs 29, 36; and the "third active device" on MOSFET 38, so that the gates of 38 and 46 are connected together, and the "active device having a gate terminal connected to the junction of said second current source and said third active device and controlled thereby" on MOSFETs 50, 51 (FR10).

Appellants' asserts that "claim 11 is a fairly detailed claim, as discussed above, and Wang has no corresponding structure" (Br14). Appellants previously correlated the limitations of claim 11 to Fig. 7 (Br9).

The examiner repeats his position (EA17-18).

It appears that the elements pointed out by the examiner satisfy the very broad claim language. Appellants have not shown any error in the examiner's findings. Accordingly, the rejection of claim 11 is sustained.

Claim 12

The examiner finds that whenever currents b0, b1, or b2 is deactivated, they can be deemed as being steered away from current mirrors 40/36, 27/29 which changes the state (i.e., the amount of current flowing) of the current mirror (FR10).

Appellants assert that Wang does not show "steering current from a current source away from one part of a current mirror to cause said current mirror to switch from one state to a second state" as recited in claim 12 (Br14).

Appellants' mere assertion that Wang does not show the claim limitation does not show the error in the examiner's finding. The rejection of claim 12 is sustained.

Claim 13

The examiner finds that "[c]urrent sources 67D-67F and 68D-68F are selectively activated/deactivated during the operational cycle of amplifier 5" (FR10).

Appellants states that this is factually incorrect because "[t]hose current sources are activated as part of the resolution selection process and are done manually by a user according to column 4, lines 17-23" (Br15). We treat this as an argument with respect to claims 13 and 18. Appellants also argue that Wang does not show "selectively activating a second power source in conjunction with a first power source during part of a recurring time interval" as recited in claim 13 (Br14).

The cycles ϕ_1 and ϕ_2 in Fig. 3 of Wang are "recurring time intervals." Appellants do not contest that Wang discloses the user selecting different resolutions at different times during operation. Thus, when a mode is selected requiring a second power source, it is activated during part of a recurring time interval as broadly claimed. The rejection of claim 13 is sustained.

Claim 14

The examiner finds that changing the amount of current supplied to amplifier 5 provides different power levels (FR10).

Appellants argue that Wang does not show "a clocked amplifier" and does not show "providing different power levels to said amplifier during at least two respective time intervals separated by clock signals" as recited in claim 14 (Br14).

The examiner finds that Fig. 3 shows clock signals ϕ_1 and ϕ_2 and therefore elements 5, 2 can be considered a clocked amplifier with different power levels (EA18).

Wang implies that different bias levels are applied at some time during operation. These time intervals are necessarily separated by the clock signals ϕ_1 and ϕ_2. Claim 14 says nothing about "cycles" as in claim 1. While appellant argues that Wang does not show "a clocked amplifier," appellants have not explained why the amplifier 5 in Wang is not a clocked amplifier

in the same sense as appellants' amplifier in Fig. 2 and has not shown error. The rejection of claim 14 is sustained.

Claim 15

The examiner finds that power control circuit 20 controls the power (current) to the active amplifier 5, thus controlling the slew rate and anticipating claim 15 (FR6).

Appellants assert that Wang does not show "during an operational phase when slew is expected, increasing current available to the amplifier irrespective of actual signal level applied to the amplifier" as recited in claim 15 (Br14).

The examiner has not convinced us that the subject matter of claim 15 is anticipated. It appears that the examiner may be silently relying on the nonenablement rejection as a basis for the rejection. The claim language calls for increasing the current available to the amplifier when slew is expected, which implies that the current is less when slew is not expected and we so interpret the claim. Wang sets the current to the amplifier based on the desired resolution and for a time until another resolution is set. Therefore, Wang does not increase the current during an operational phase when slew is "expected." The rejection of claim 15 is reversed.

Claim 16

The examiner finds that when the resolution control is changed to I, 2I, or 4I, the current to the amplifier is decreased and claim 16 is anticipated (FR10).

Appellants argue that Wang does not show "decreasing current available to the amplifier during an operational phase when little activity is expected" as recited in claim 16 (Br14).

Claim 16 is the converse of claim 15. Wang sets the current to the amplifier based on the desired resolution and for a time until another resolution is set. Therefore, Wang does not decrease the current during an operational phase when little activity is expected. The rejection of claim 16 is reversed.

Claim 17

The examiner finds that current mirrors 40-44/36 and 27/29/34/35 are controlled to switch current in and out to control power to amplifier 22, 28, thus anticipating claim 17 (FR10).

Appellants assert that Wang does not show "using two current mirrors to provide power to the amplifier" and "switching one current mirror in or out to control power to the amplifier without adversely affecting the amplifier" in claim 17 (Br14).

The examiner's findings appear reasonable and appellants bare assertion that Wang does not show the limitation does not

show error in the examiner's findings. Accordingly, the rejection of claim 17 is sustained.

Claim 18

The examiner finds that "[c]urrent sources 67D-67F and 68D-68F are selectively activated/deactivated during the operational cycle of amplifier 5" (FR10).

As noted in connection with claim 13, appellants argue that the examiner is factually incorrect because "[t]hose current sources are activated as part of the resolution selection process and are done manually by a user according to column 4, lines 17-23" (Br15). Appellants assert that Wang does not show "at least two sources of current to said active element in which one of the sources is selectively activated during at least one portion of an amplifier's operational cycle and inactive otherwise" as recited in claim 18 (Br15).

As noted in connection with claim 1, we agree with the examiner that an "operational cycle" is broad enough to read on the time when a circuit is in operation. Claim 18 does not require one of the sources to be activated at any specific time during the cycle; e.g., a time when slew is expected. Appellants do not contest that Wang discloses the user selecting different resolutions at different times during operation, so the high power current 4I is applied at some time using one of the sources

of current that is inactive when currents 2I or I are applied. The anticipation rejection of claim 18 is sustained.

35 U.S.C. § 103(a) over Wang

Appellants argue that Wang does not teach the limitations of claims 5-8 (Br18-19).

With respect to claim 5, the examiner finds that Wang does not show the power control circuit with current mirrors (FR12). The examiner finds that Wang discloses that other circuitry could be used and concludes that it would have been obvious to replace the current sources and the corresponding switches with current mirrors, which could include current mirrors coupled in parallel (FR12).

The fact that other circuitry could be used is not motivation for using current mirrors, much less the claimed two current mirrors in parallel. There must be some reason why one of ordinary skill in the art would have sought to use two current mirrors in parallel and the examiner does not provide that reason, nor any reference. The rejection of claim 5, and claims 6-8 which depend on claim 5, is reversed.

CONCLUSION

The rejection of claims 15 and 16 under 35 U.S.C. § 112, first paragraph, is reversed.

The rejection of claims 1-8, 11, 17, and 18 under § 112, second paragraph, is reversed. The rejection of claim 15 under § 112, second paragraph, is sustained.

The rejection of claims 10 and 17 under § 102(b) over Mizuide is sustained. The rejection of claims 1, 5, 7, 8, 12, 13, 15, 16, and 18 under § 102(b) over Mizuide is reversed.

The rejection of claims 2-4, 6, 9, 11, and 14 under 35 U.S.C. § 103(a) over Mizuide is reversed.

The rejection of claims 1-4, 10-14, 17, and 18 under § 102(e) over Wang is sustained. The rejection of claims 9, 15, and 16 under § 102(e) over Wang is reversed.

The rejection of claims 5-8 under § 103(a) over Wang is reversed.

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

LEE E. BARRETT Administrative Patent Judge	)
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STUART S. LEVY Administrative Patent Judge	)

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