

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LEO YUAN
and
CHRISTOPHER CHENG

Appeal No. 1999-2568
Application No. 08/640,096

ON BRIEF

Before HAIRSTON, GROSS, and BLANKENSHIP, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 10. In an Amendment After Final¹ (paper number 11),

¹The amendment is set forth in the body of the reply brief. According to the examiner (supplemental answer, page 1), the amendment had the effect of overcoming the indefiniteness rejection of claim 7. The same holds true for the indefiniteness rejection of dependent claims 8 through 10.
(continued...)

claim 7 was amended.

The disclosed invention relates to a method and system for implementing wire-or functions.

Claims 1 and 7 are illustrative of the claimed invention, and they read as follows:

1. A method of improving a system cycle time in a system implementing wire-or function comprising the step of:

reducing a wire-or glitch so that a bus can be sampled after a single trip propagation delay.

7. A system supporting wire-or functions comprising:

a plurality of drivers disposed along a bus, the drivers having a gradual rise time and a rapid fall time such that for any pair of simultaneously switching drivers along the bus, a falling signal of one of the pair of drivers along the bus will propagate to a rising signal of another of the pair of drivers along the bus before the rising signal reaches a predetermined level; and

a first terminal resistor and second terminal resistor coupled to a first end and a second end of the bus, respectively.

The reference relied on by the examiner is:

Belluche

3,694,665

Sep. 26,

¹(...continued)

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1972

Claims 2 through 6 stand rejected under the first paragraph of 35 U.S.C. § 112 for lack of enablement.

Claim 6 stands rejected under the second paragraph of 35 U.S.C. § 112 for indefiniteness.

Claims 1 through 3, 7 and 8 stand rejected under 35 U.S.C.

§ 102(b) as being anticipated by Belluche.

Claims 2, 4 through 6, 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Belluche.

Reference is made to the briefs (paper numbers 9 and 11) and the answers (paper numbers 10 and 12) for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse all of the rejections of record.

Turning first as we must to the indefiniteness rejection, the examiner's rejection is as follows (answer, page 3):

In claim 6, line 2, the recitation of "a lower threshold voltage" is indefinite. What is the threshold voltage lower than? On line 3, the recitation of "a terminal voltage" is indefinite. What determines a terminal voltage?

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In response, appellants argue (reply brief, page 2) that:

With respect to claim 6, the Examiner questions, "what is the threshold lower than?" The answer is, of course, lower than the high threshold voltage, and is represented as VIL 50 in Figures 1 and 3. The Examiner further questions, "what determines a terminal voltage?" Terminal voltage is VTT, which is determined by the power supply to the bus and any associated voltage regulator. This would be clearly understood by anyone of ordinary skill in the art, and appears as Reference numeral 1 in Figure 2.

Although claim 6 is not a model of clarity, we do, however, agree with the appellants that the skilled artisan would understand the metes and bounds of this claim when it is read in light of the disclosure, and particularly Figures 2 and 3. In Figure 3b, for example, any voltage below low threshold voltage line 50 is a "voltage below a lower threshold voltage." We likewise agree with appellants that the "terminal voltage" in this same figure is VTT. In light of our agreement with appellants' arguments, the indefiniteness rejection of claim 6 is reversed.

Turning next to the lack of enablement rejection, the examiner is of the opinion (answer, page 3) that "the specification does not provide any description or drawings on how the drivers 6 and 7 are modified to allow slowing a rise

time, minimizing a fall time, incrementally increasing the voltage of the first signal and driving the first signal to a voltage."

Inasmuch as the drivers 6 and 7 are shown as black boxes (Figure 2), we find that the examiner had a reasonable basis for questioning the adequacy of the disclosure of these two drivers. In response, appellants argue (brief, pages 7 and 8) that:

The level of one of ordinary skill is high. Since the level of predictability in the art is also high, Applicants submit the teaching of constructing a slow rise time driver and having identified the rate at which the driver rises as a function of propagation speed of the loaded bus such that the off going signal propagating along the bus will, under worst case circumstances, reach an ongoing signal before the rising signal rises significantly above a high threshold voltage, provides sufficient information for one of ordinary skill in the art to make such a driver. Moreover, since constructing a voltage ramp does not require an expert in the art, the quantity of experimentation needed to make or use the invention based on the content of the disclosure is low. As admitted by the Examiner, "the characteristics shown in the wave forms of Figs. 3a-3c represent a multitude of circuits that could be designed." (OA, 4/1/98, p.4, 1.15-16).

Figures 3a, b, and c show graphs of negative-going wave 9 at the location of the on-going driver, positive-going wave 8 at the location of the off-going driver, and a composite wave 10 for one exemplary embodiment of the instant invention

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respectively. (Orig. App., p.7, l.24-26) Since these driver waveforms and the characteristics of these driver waveforms are identified in detail in the specification, Applicants asserts [sic] that a person having ordinary skill in the art would readily be able to fabricate drivers satisfying the characteristics of these driver wave forms. Thus, as filed, the specification complies with the first paragraph of 35 U.S.C. § 112 since the specification and drawings, coupled with information known in the art, enables any person skilled in the art to make and use the subject matter defined by claims 2 through 6 without undue experimentation.

We agree. The lack of enablement rejection of claims 2 through 6 is reversed in light of appellants' convincing arguments that an undue amount of experimentation is not needed to arrive at circuitry for drivers 6 and 7 that will produce the disclosed and claimed signals and voltages.

In the anticipation rejection of claims 1 through 3, 7 and 8, the examiner is of the opinion (answer, page 4) that Belluche discloses "a wired-or bus (11) the same as the instant invention reducing a wire-or glitch so that the bus (11) can be sampled after a single trip propagation," and "[a] plurality of wired OR or open-collector drivers (10) . . . disposed along a bus." The examiner's contentions to the contrary notwithstanding, Belluche is completely silent as to "a single trip propagation," and the gates 10-1 through 10-N

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disclosed therein are not configured as drivers, but as low impedance paths to ground when they are gated on (column 1, lines 39 through 52). As each of the gates is turned on, the current from single driver 14 is diverted from the current sensing device 15 to ground. Thus, we agree with the appellants (reply brief, page 2) that "Belluche is incapable of meeting the functional limitations" of the claims. The anticipation rejection of claims 1 through 3, 7 and 8 is reversed because of the lack of "a single trip propagation delay" (claim 1), and "a plurality of drivers disposed along a bus" (claim 7) in Belluche.

Turning lastly to the obviousness rejection of dependent claims 2, 4 through 6, 9 and 10 based upon the sole teachings of Belluche, this rejection is reversed for all of the reasons that the anticipation rejection of claims 1 through 3, 7 and 8 was reversed.

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DECISION

All of the rejections of record have been reversed.
Accordingly, the decision of the examiner is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
ANITA PELLMAN GROSS)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
)	
)	
HOWARD B. BLANKENSHIP)	
Administrative Patent Judge)	

KWH:hh

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