

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREW MARSHALL

Appeal No. 1997-1389
Application 08/642,811

ON BRIEF

Before THOMAS, FLEMING and GROSS, Administrative Patent
Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellant has appealed to the Board from the examiner's
final rejection of claims 1 through 5, which constitute all
the claims in the application.

Representative claim 1 is reproduced below:

1. A bridge control circuit for substantially
eliminating shoot-through current comprising:

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an H-bridge circuit; and

active feedback circuitry coupled to said H-bridge circuit to detect a predetermined half H-bridge output voltage level, and upon said detection enabling turn on of next phase of a drive sequence.

The following references are relied on by the examiner:

Hattori	5,057,720	Oct. 15, 1991
Fukunaga	5,099,138	Mar. 24, 1992
Wilcox	5,408,150	Apr. 18, 1995

(filed Mar. 22, 1993)

Claims 1 through 5 stand rejected under 35 U.S.C. § 112, second paragraph, because, in the examiner's view, the language "next phase" and "drive sequence" at the end of claim 1 are not clearly defined and are thus vague and indefinite. Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by either Hattori or Fukunaga. Claim 1 also stands rejected under 35 U.S.C. § 102(e) as being anticipated by Wilcox.

Rather than repeat the positions of the appellant and the examiner, reference is made to the brief and the answer for the respective details thereof.

OPINION

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Turning first to the rejection of claims 1 through 5 under the second paragraph of 35 U.S.C. § 112, it is to be noted that to comply with the requirements of the cited paragraph, a claim must set out and circumscribe a particular area with a reasonable degree of precision and particularity when read in light of the disclosure and the teachings of the prior art as it would be by the artisan. Note In re Johnson, 558 F.2d 1008, 1016, 194 USPQ 187, 194 (CCPA 1977); In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971).

We have reviewed and considered the examiner's reasons in support of the rejection, but are not convinced that the cited claims fail to comply with the second paragraph of 35 U.S.C. § 112. At the outset, we note that the breadth of the claims is not equated with indefiniteness of the claims. See In re Miller, 441 F.2d 689, 693, 169 USPQ 597, 600 (CCPA 1971). It is perfectly permissible for appellant to claim his invention in terms as broad as his application disclosure will support.

The examiner's concerns with respect to the next phase of a drive sequence set forth at the end of claim 1 on appeal relate to a more restrictive view of the second paragraph of

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35 U.S.C. § 112 than is required by the above noted precedent. The examiner appears to desire more than a reasonable degree of precision and particularity of the claim when read in the absence of the disclosed invention and in the absence of the teachings of the prior art. The examiner's remarks at pages 3 and 5 of the answer are without these key contexts.

Appellant's remarks at page 4 of the brief properly set forth these contexts of the above-noted case law. We agree with appellant's general view there that the meaning of the questioned terms may be properly construed by an artisan in the context of the type of motor being driven by the H-bridge circuit. Granted, representative claim 1 is somewhat broad in many respects, however, in our view, it is not so broad as to be indefinite. Therefore, we reverse the rejection of claims 1 through 5 under the second paragraph of

35 U.S.C. § 112.

As to the section 102 rejection of claim 1 in light Hattori, we reverse this rejection. The examiner does not assert in the rejection at pages 3 and 4 of the answer and in the responsive arguments portion of the answer at page 6 that the apparent feedback circuitry comprising the two transistors

14 and 15 in Hattori operate upon the detection of a predetermined half H-bridge output voltage level. Inasmuch as this reference is the same reference discussed by appellant at page 2 of the specification as filed, appellant notes there that Hattori's circuit cannot be used with a half H-bridge circuit. Furthermore, as noted by appellant at the top of page 6 of the brief, Hattori's detection does not enable the turn on of a next phase of the drive sequence. A next phase of a drive sequence in Hattori is inevitable, but it is not enabled by the detection operation of the active feedback circuitry claimed. There is no feedback of transistors 14, 15 to the control circuit 11 in Hattori.

On the other hand, we sustain the rejection of claim 1 under 35 U.S.C. § 102 as being anticipated by Fukunaga for the reasons set forth by the examiner at pages 4, 7 and 8 of the answer. As noted by the examiner, the context of the specific disclosure in this reference is with respect to the three phase bridge circuit set forth in prior art Figure 1 of Fukunaga for the motor 1. As noted by the examiner in the rejection, the midpoint between the upper power switch devices 2U, 3U, 4U and the lower power switching device 2L, 3L, and 4L

in Figure 1 comprises the claimed output of what amounts to half of the claimed H-bridge. Figure 5 is the basic block diagram circuit which is detailed in certain portions in Figure 6 which the examiner discusses in detail.

The monitoring circuit 13U, 13L is shown in Figure 5 and shown in more detail in Figure 6. As noted in the abstract of this reference, it would appear by inspection of Figure 5 that the monitoring circuits 13U, 13L are connected respectively only to the power switching devices 2U, 2L. However, in accordance with the showing in Figure 6 in the discussion with respect to this figure beginning at the bottom of column 4, it is noted that the apparent monitoring voltage V_{GL} , V_{GU} is "based on" an emitter voltage V_{EL} , V_{EU} . Note the paragraph bridging columns 4 and 5. It is clear from the showing of Figure 10 that the switching devices 2U, 2L may utilize a current detecting transistor which utilizes the output of V_{MON} "based on" the voltage output from the current detector resistor 20 which is connected again to the emitter portion V_{EU} , V_{EL} . The voltage developed at V_{MON} through the current detecting resistor 20 is based upon the current flowing through the entire transistor 19U, 19L in Figure 10. Note the discussion

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in the paragraph bridging columns 6 and 7 of Fukunaga. As well pointed out by the examiner in the noted portions in the answer, Figures 12 and 13 make it clear that a current transformer and a current detecting resistor may be utilized in the alternative "to derive a voltage . . . in response to a main current flowing in the switching device 2U (2L) through an amplifier 25 as a monitor voltage V_{MON} ." (column 7, lines 15 through 20.)

In view of the foregoing assessment of this reference, it is clear that there is detection of an output voltage of a half H-bridge circuit as set forth at the end of claim 1 on appeal to enable subsequent drive sequences through the other logic feedback circuitry of Figures 5 and 6. We find unpersuasive, as does the examiner, appellant's discussion of this reference at pages 6 and 7 of the brief. As noted by the examiner, appellant's discussion with respect to Figure 10 relates primarily to features not pertinent to the claimed invention recited in claim 1 on appeal. Therefore, we sustain the rejection of claim 1 under 35 U.S.C. § 102 as being anticipated by Fukunaga.

Finally, we turn to the rejection of claim 1 under 35 U.S.C. § 102 as being anticipated by Wilcox. We sustain this rejection for the reasons set forth by the examiner in the paragraph bridging pages 4 and 5 of the answer as well as the responsive arguments addressed to this rejection at pages 8 and 9 of the answer. Appellant's brief remarks with respect to this rejection at page 9 of the brief are, at best, incomplete. Although the Figure 2 embodiment of Wilcox's half-bridge circuit does monitor the gate drive voltages of transistors 21 and 22 by means of top gate feedback node 33 and bottom gate feedback 35, the reference shows in Figure 2 a so-called top source feedback node 34 which clearly is shown to monitor the output voltage feeding the output node 26 for the load 24 where this node 26 is located between the transistors 21 and 22.

The discussion beginning at column 4, line 38 with respect to Figure 2 in Wilcox clearly indicates that the logic circuit 32 in fact controls the turning on and off of the respective transistors 21 and 22 based upon this feedback information derived from transistors 21 and 22, thus meeting the enabling language feature at the end of claim 1 on appeal.

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The discussion of the first two paragraphs of column 5 of this reference also indicate that the logic circuit 32 operates to reduce or prevent the occurrence of shoot-through voltages associated with respect to transistors 21 and 22. Thus, these teachings clearly meet the end use limitation of the preamble of claim 1 on appeal "for substantially eliminating shoot-through current" to the extent this limitation breathes any life or meaning into the body of claim 1 on appeal.

Attention is also directed to the Figure 8 embodiment discussed at the middle of column 8 which shows a comparable circuit to Figure 2 but utilizes instead a bootstrap bias detector 71 connected to the midpoint of the transistors 21 and 22 at the output thereof, where the circuit 70 feeds directly into the logic circuit 65, which circuit generally is taught to control the switching transistors 21 and 22. The enablement feature at the end of claim 1 is taught in the same words at column 9, lines 22 through 26 with respect to Figure 8's more detailed showings in Figure 9.

In summary, we have sustained two of the three rejections under 35 U.S.C. § 102 of claim 1 on appeal but have reversed

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the rejection of claims 1 through 5 under the second paragraph
of
35 U.S.C. § 112. Accordingly, the decision of the examiner is
affirmed-in-part.

AFFIRMED-IN-PART

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Administrative Patent Judge)	
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)	
MICHAEL R. FLEMING)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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