

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte TAKAMASA HARADA,  
MASAAKI TAGUCHI AND  
KOJI IWASA

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Appeal No. 97-2028  
Application 07/954,290<sup>1</sup>

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HEARD: November 14, 1997

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Before HAIRSTON, JERRY SMITH, and BARRETT, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

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<sup>1</sup>Application filed September 30, 1992, for Reissue of U.S. Patent 4,715,688, granted December 29, 1987, based on Application 06/679,760, filed December 10, 1984.

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DECISION ON APPEAL

This is an appeal<sup>2</sup> from the final rejection of claims 42 through 116. In an Amendment After Final<sup>3</sup> (paper number unknown), claims 44, 58, 66, 92, 104 and 116 were amended.

The disclosed invention relates to a ferro-electric liquid crystal display device.

Claim 42 is illustrative of the claimed invention, and it reads as follows:

42. A liquid crystal display device driven in a time-sharing mode, comprising:

a plurality of scanning electrodes and a plurality of display electrodes spaced apart from each other;

a ferro-electric liquid crystal layer disposed between the scanning electrodes and the display electrodes such that the

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<sup>2</sup>According to appellants (Brief, page 2), the instant application is "a reissue application of appellants' U.S. Patent No. 4,715,688, the claims of which were canceled as a result of an adverse decision in Patent Interference No. 102,092."

<sup>3</sup>In an Advisory Action (paper number 27), the examiner indicated that the 35 U.S.C. § 251 rejection of claims 92, 104 and 116, the 35 U.S.C. § 112 rejection of claim 66, and the objection to claim 58 were overcome by the amendment. In view of this amendment, and the submission of the Supplemental Reissue Declaration (paper number 21), we assume that the 35 U.S.C. § 251 rejection of claims 42 through 116 as being based upon a defective reissue declaration has likewise been overcome by appellants' submissions.

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layer loses a spiral molecular alignment thereof to establish two bi-stable molecular alignments;

drive means connected to the plurality of scanning electrodes for applying scanning electrode signals and sequentially applying selecting scanning electrode signals to each of the plurality of scanning electrodes and connected to the plurality of display electrodes for applying display electrode signals synchronized with the scanning electrode signals to the plurality of display electrodes; and

converting means for converting the two bi-stable molecular alignments to corresponding optical ON and OFF display states, respectively;

wherein selecting electrical signals produced by combining the selecting scanning electrode signals and the display electrode signals are applied to the layer between the scanning electrodes and the display electrodes in a selecting period of the scanning electrodes for sufficiently changing one of the two bi-stable molecular alignments to the other bi-stable molecular alignment and A.C. electric signals produced by combining the scanning electrode signals and the display electrode signals, the A.C. electric signals having an amplitude and a pulse width insufficient to change the bi-stable molecular alignments, and are applied to the layer between the scanning electrodes and the display electrodes in a non-selecting period of the scanning electrodes to hold the other bi-stable molecular alignment, such that the pulse width of each voltage polarity included in the A.C. electric signals does not exceed a time width of said each selecting period of the scanning electrode.

The reference relied on by the examiner is:

Kawakami et al. (Kawakami)            4,062,626            Dec. 13, 1977

Claims 42 through 116 stand rejected on the ground of interference estoppel.

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Reference is made to the briefs and the answer for the respective positions of the appellants and the examiner.

OPINION

Under interference estoppel, the losing party (i.e., appellants) is only estopped to obtain claims which read directly on disclosures of subject matter clearly common to both the winning party's application (i.e., the disclosure in U.S. Patent No. 4,655,561 to Kanbe) and that of the losing party. See In re Risse, 378 F.2d 948, 957, 154 USPQ 1, 8 (CCPA 1967). In other words, appellants are estopped to obtain claims that could have been made counts in the interference. The Patent Office has the initial burden of showing that appellants' claims read on disclosures that are clearly common to both the winning party's application and that of appellants' application. See In re Wilding, 535 F.2d 631, 635, 190 USPQ 59, 63 (CCPA 1976).

Appellants argue that "claims 42-116 recite various limitations on the pulse width and formation of A.C. stabilizing signals applied to the liquid crystal material to prevent the unintended switching of pixels," and that the "functional language recited in these claims makes it clear that the A.C. signal is an A.C. holding signal, which is separate and distinct from the data and scanning signals applied to the pixels" (Brief,

pages 12 and 13). According to the examiner (Answer, page 11), Figures 13 (a) through 13 (e) in Kanbe are clearly common subject matter to the now claimed subject matter.

In the BRIEF DESCRIPTION OF THE DRAWINGS section of Kanbe: Figure 13(a) is described as showing "a waveform of a signal applied to a selected scanning electrode in a still further embodiment;" Figure 13(b) is described as showing "a waveform of a signal applied to non-selected scanning electrodes in the still further embodiment;" Figures 13(c) and 13(d) are described as waveforms showing "information signals applied to a selected signal electrode and non-selected electrodes, respectively, among signal electrodes which are to be provided with new image information;" and Figure 13(e) is described as showing "a waveform of a signal applied to a signal electrode which are not to be provided with new image information." In the DESCRIPTION OF THE PREFERRED EMBODIMENTS section, Kanbe states that:

Referring to FIG. 13, there is shown another embodiment of the driving mode according to the present invention. More particularly, a signal on a selected scanning electrode is shown in FIG. 13(a), a signal on a non-selected scanning electrode is shown in FIG. 13(b), a selected information signal (corresponding to the presence of information) is shown in FIG. 13(c), a non-selected (corresponding to the absence of information) is shown in FIG. 13(d), and an information signal which maintains a signal when last scanned is

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shown in FIG. 13(e)(column 19, line 65 through column 20, line 7).

The examiner contends that "Figure 13(c) is a A.C. signal with an offset of  $V\{t_2/(t_1+t_2)\}$ , Figure 13(d) is an A.C. signal with an offset of  $-V\{t_1/(t_1+t_2)\}$  and Figure 13(e) is an A.C. signal without an offset" (Answer, page 13). The examiner is also of the opinion (Answer, page 15) that:

The A.C. holding signal comprises figures 13(b) and 13(e) which results in the voltage 13(b)-13(e) being applied to the liquid crystal. Since 13(b) = 0 volts, the bipolar voltage -13(e) is applied to the liquid crystal. Since the application time of 13(a) and 13(e) are equal, appellants [sic, appellants'] claims are met.

In response to the examiner's explanation of Figures 13(a) through 13(e), appellants argue (Reply Brief, pages 5 and 6) that:

Referring specifically to Figs. 13(c) and 13(d), one can readily observe that these signals are merely simple DC pulses having a single polarity. Despite being so far afield of fundamental electrical principle, the Examiner's incredulous assertion that a simple DC pulse can somehow be characterized as an AC signal is representative of the Examiner's unyielding, unreasonable and inaccurate approach in this case.

The Examiner's contention that Kanbe discloses AC holding signals in various figures is equally erroneous. The mere fact that in various drawings Kanbe illustrates AC signals is completely irrelevant since the appealed claims explicitly require the application of AC holding signals during a specific time interval for a specific purpose and having a specific upper limit pulse width. The fact that the

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Kanbe patent discloses an AC data signal and an AC selecting signal in various instances is completely irrelevant as to whether or not these signals are AC holding signals, which they are not. Nor are any of these signals effective to hold the display state of the respective pixels, as recited in the respective claims.

With respect to Figure 13(e) of Kanbe, appellants argue (Reply Brief, page 8) that

the Fig. 13(e) signal is applied when it is desired to refresh (or maintain the display state) of a selected pixel. There is no suggestion in Kanbe of applying the Fig. 13(e) signal during non-selecting periods to hold the display state of the pixels.

Appellants also argue (Reply Brief, page 16) that each of the claims on appeal limits the pulse width of the AC signal to the selecting period, and not to twice the selecting period as in Kanbe.

We agree with appellants' argument (Reply Brief, page 6) that each of the claims on appeal recites "the application of AC holding signals during a specific time interval for a specific purpose and having a specific upper limit pulse width." An AC holding signal with a specific limit on the pulse width as required by each of the claims on appeal can not be found in Kanbe. The examiner's explanation of Figure 13 does not convince us that Kanbe has a disclosure of such specifically claimed subject matter. Thus, we will reverse the interference estoppel

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rejection of claims 42 through 116 because the examiner has not satisfied the initial burden of showing that appellants' claims read on disclosures that are clearly common to both Kanbe and appellants.

With respect to Kawakami, we agree with appellants' argument (Brief, page 36) that claim 45 is patentably distinguished over this reference by reciting AC holding signals.

DECISION

The decision of the examiner rejecting claims 42 through 116 on the grounds of interference estoppel is reversed.

REVERSED

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
JERRY SMITH	)	APPEALS AND
Administrative Patent Judge	)	INTERFERENCES
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LEE E. BARRETT	)	
Administrative Patent Judge	)	

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