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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MOHAMED M. E. ELSAYED and
KENNETH W. FERNALD

Appeal 2019-004223
Application 14/555,510¹
Technology Center 2600

Before CAROLYN D. THOMAS, JON M. JURGOVAN, and
SCOTT RAEVSKY, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant seeks review under 35 U.S.C. § 134(a) from a Non-Final Rejection of claims 1–20, constituting all of the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.²

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. According to Appellant, the real party in interest is Silicon Laboratories Inc. Appeal Br. 1.

² Our Decision refers to the Specification (“Spec.”) filed November 26, 2014 as amended on February 16, 2015; the Non-Final Office Action (“Non-

CLAIMED INVENTION

The claims relate to a multiplexed liquid crystal display (LCD) controller. Spec. ¶ 6, Abstr. The LCD controller drives a first set of signal lines during a first phase of operation and a second set of signal lines during a second phase of operation. *Id.* The LCD controller selectively couples some of the signal lines to a node between the first and second phases of operation depending on the data received by the LCD controller. *Id.*

The LCD controller may be used to drive multiple seven-segment digit displays with common lines and segment lines to charge or discharge segment capacitors. *Id.* ¶ 31; Figs. 2, 3. The LCD controller uses a technique called ‘segment resetting’ during the reset period between phases of operation. *Id.* ¶¶ 7, 8, 28, 92, 93. If the voltage values of a display segment that is excited by one of the common lines are the same in the current and following phase, then its segment line is floated during the reset period. *Id.* ¶ 92. Conversely, if the voltages values differ in the current and following phases of operation, then the segment line is reset by coupling the segment line to a desired voltage. *Id.* ¶ 93. The operation of the LCD controller is thus data-dependent.

Claims 1, 10, and 17 are independent. Claim 1 is an apparatus claim directed to the LCD controller, claim 10 is an apparatus claim directed to the combination of the LCD controller and LCD display, and claim 17 is a method of operating the LCD display. Appeal Br. 31–33 (Claims Appendix). Claims 2–9 depend from claim 1; claims 11–16 depend from

Final Act.”) mailed April 19, 2018; the Appeal Brief (“Appeal Br.”) filed November 19, 2018; the Examiner’s Answer (“Ans.”) mailed March 7, 2019; and the Reply Brief (“Reply Br.”) filed May 6, 2019.

claim 10; and claims 18–20 depend from claim 17. Claim 1, shown below with argued limitation in *italics*, is representative of the claimed invention.

1. An apparatus, comprising a multiplexed liquid crystal display (LCD) controller operating in at least first and second phases of operation, the LCD controller to drive a first plurality of signal lines to a first set of voltages during the first phase of operation and to a second set of voltages during the second phase of operation, *wherein the LCD controller selectively couples to a node at least some of the first plurality of signal lines after the first phase of operation and before the second phase of operation depending on display data provided to the LCD controller*, the display data comprising data to be displayed on the LCD.

Appeal Br. 31 (Claims Appendix).

REJECTIONS³

Claims 1–20 stand rejected under 35 U.S.C. § 112(a) for failing to comply with the written description requirement. Non-Final Act. 10–11.

Claims 1–3, 6, 7, 9–11, and 15–17 stand rejected under 35 U.S.C. § 103 based on Van Ess (US 2011/0169814 A1, published July 14, 2011) (“Ess”) and Bar (US 2010/0079439 A1, published April 1, 2010). Non-Final Act. 12–20.

³ In the Non-Final Office Action, claims 1–38 were rejected under 35 U.S.C. § 101. Non-Final Act. 8–16. However, the Examiner withdrew the § 101 rejection in the Answer. Ans. 3. Accordingly, the § 101 rejection is not before us and thus we do not address it further in this decision.

ANALYSIS

Standard of Review

We undertake a limited *de novo* review of the appealed rejections for error based upon the issues identified by Appellant, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, Appeal No. 2009-006013 (Feb. 26, 2010) (precedential).

Section 112(a) Rejection

Section 112(a) requires that

[t]he specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same.⁴

The written description must reasonably convey to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc); *D Three Enterprises, LLC v. SunModo Corp.*, 890 F.3d 1042, 1047 (Fed. Cir. 2018).

The Examiner finds the Specification lacks written description support for the claim limitation shown in *italics* in claim 1 as reproduced above, as

⁴ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011) (“AIA”), included revisions to 35 U.S.C. § 112 that became effective on September 16, 2012. Because the present patent application is a continuation-in-part filed after this date, we assume AIA § 112 applies to this application. However, our analysis would not be different if pre-AIA § 112 applied to this case.

well as for similar limitations in claims 10 and 17.⁵ Non-Final Act. 10–11. Conversely, Appellant argues that the Specification provides written description support for the italicized claim limitation under § 112. Appeal Br. 10–11; Reply Br. 1–4.

We agree with Appellant’s argument. The Specification states, “[t]he LCD controller selectively couples to a node at least some of the plurality of signal lines between the first and second phases of operation depending on data provided to the LCD controller.” Spec. ¶ 6. Although claim 1 recites that the selective coupling to a node occurs *after* the first phase of operation and *before* the second phase of operation, the Examiner has not demonstrated any difference in meaning from selective coupling that occurs *between* the first and second phases of operation as described in the Specification. *See* Ans. 4; Reply Br. 4; Spec. ¶ 6, Fig. 10 [t_{rst}]. To comply with the written description requirement of § 112, the Specification is not required to provide literal support, word for word, for the recited claim language. *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1324 (Fed. Cir. 2000) (“In order to satisfy the written description requirement, the disclosure as originally filed does not have to provide *in haec verba* support for the claimed subject matter at issue.”); MPEP § 2163.02.

Claim 10 recites “the controller is to selectively perform segment resetting after the first phase of operation and before the second phase of

⁵ Although the body of the § 112(a) rejection mentions independent claims 1 and 10, it does not mention independent claim 17. The rejection heading, however, indicates it applies to all pending claims. Non-Final Act. 10–11. Accordingly, we assume the Examiner intended that the § 112(a) rejection applies to claim 17 for the same reasons as stated for claims 1 and 10.

operation of the LCD depending on display data provided to the LCD controller.” Appeal Br. 32 (Claims Appendix). The Specification states,

According to yet another exemplary embodiment, a method of operating an LCD includes operating the LCD in a first phase of operation, and after operating the LCD in the first phase of operation, selectively performing segment resetting based on data provided to the LCD controller. The method further includes operating the LCD in a second phase of operation after performing selective segment resetting.

Spec. ¶ 8. In other words, the Specification describes operating the LCD in a first phase of operation, after which segment resetting is performed, after which the LCD is operated in a second phase of operation. The Examiner has not shown the Specification’s description has a different meaning from the claimed selective performance of segment resetting after the first phase of operation and before the second phase of operation of the LCD controller.

Claim 17 recites almost *verbatim* the above excerpt from the Specification. *See* Spec. ¶ 8; Appeal Br. 33. Thus, while written description is not an *in haec verba* test, claim 17 is described word for word, or nearly so, in the Specification.

Accordingly, the Examiner has not shown that the Specification fails to convey to one of ordinary skill in the art that the inventors were in possession of the claimed invention as of the filing date. We thus do not sustain the Examiner’s rejection of claims 1–20 under the written description requirement of § 112(a).

§ 103 Rejection

Title 35, section 103, provides

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between

the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.⁶

The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) where present, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A. Independent Claims 1, 10 and 17

Appellant argues claims 1, 10, and 17 together as one group. Appeal Br. 18–24. Accordingly, we select claim 1 as representative and unless otherwise indicated will restrict our analysis to this claim only. 37 C.F.R. § 41.37(c)(1)(iv) (“When multiple claims subject to the same ground of rejection are argued as a group or subgroup by appellant, the Board may select a single claim from the group or subgroup and may decide the appeal as to the ground of rejection with respect to the group or subgroup on the basis of the selected claim alone”).

The Examiner finds that the combination of Ess and Bar teaches or suggests the limitations of claim 1. Non-Final Act. 13–16 (citing Ess ¶¶ 44, 45, Figs. 5A, 5B, 12). Appellant contends the Examiner erred and presents several arguments for patentability. Appeal Br. 18–24; Reply Br. 4–8.

⁶ The AIA included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the present patent application is a continuation-in-part filed after this date, we assume AIA § 103 applies to this application. However, on this record, our analysis would not be different if pre-AIA § 103 applied to this case.

Appellant's arguments do not persuade us of Examiner error for the following reasons.

(1) Node Coupling

The Examiner finds that Ess teaches or suggests the argued limitation of claim 1 shown in emphasis above. Appellant argues “the Office Communication fails to show that Ess couples at least some of the plurality of signal lines to a node between two time slots or after a first timeslot and before a second timeslot, even if one assumes, for the sake of the argument, that the ‘off modes’ constitute ‘segment resetting.’” Appeal Br. 18; Reply Br. 4–5.

In the rejection, the Examiner relies on Ess's Figure 12, shown below. Non-Final Act. 7, 16; Ans. 6, 8.

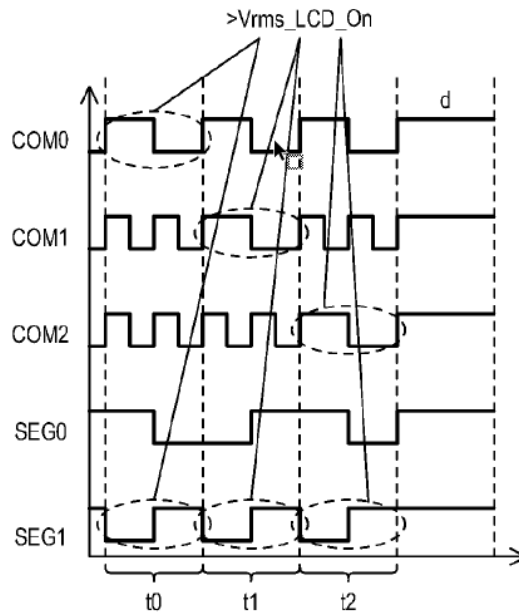


FIG. 12

Ess's Figure 12 shows driver signals (COM0, COM1, COM2, SEG0, SEG1) generated by multiplexing control signals. Ess ¶¶ 107–109. The COM

signals drive one side of the LCD and the segment signals drive the other side. *See* Ess Fig. 3; Spec. Fig. 3. The Examiner considers the first halves of the timeslots t0, t1 in Ess as the claimed “first and second phases of operation” and the second halves of the timeslots t0, t1 as reset periods. Non-Final Act. 7, 16; Ans. 6, 8. In Ess’s Figure 12, COM0 and SEG0 are both low during timeslot t0’s reset period, and COM1 and SEG1 are both high during timeslot t0’s reset period. These signals must be coupled to a node (voltage supply or ground) for this to occur. Accordingly, Ess at least suggests some of the signal lines are connected to a node after the first phase and before the second phase, as claimed. We thus find Appellant’s argument unpersuasive.

Appellant argues the “off modes” of Ess’s Figures 5A and 5B do not constitute “segment resetting.” Appeal Br. 18–19. This argument, however, does not negate the Examiner’s findings with respect to Ess’s Figure 12 discussed above.

(2) Choice Of

Appellant also argues the Examiner based the entire case on interpretation of the word “between” in the claims as meaning “choice of” first and second phases of operation. Appeal Br. 19–20; Non-Final Act. 4. We do not agree that the Examiner’s entire case hinges on the “choice of” interpretation. For reasons just explained, the Examiner cited Ess’s Figure 12 as showing selective coupling of signal lines to nodes between first and second phases of operation. Thus, Appellant has not demonstrated reversible error.

(3) Segment Resetting

Appellant argues “Ess simply has nothing to do with segment resetting.” Appeal Br. 20; Reply Br. 7. Claim 1, however, does not mention “segment resetting” and terms that do not appear in the claim cannot be relied upon for patentability. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982).

Furthermore, as explained, Ess’s Figure 12 shows the COM0 and SEG0 signals are both low (grounded) during the reset period. This would have the effect of resetting the segment capacitance similarly to what is shown below in Figure 12B of Appellant’s Specification.

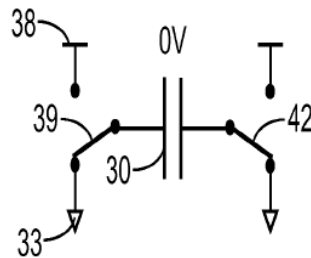


Fig. 12B

Specifically, in Figure 12B, switches 39, 42 couple both terminals of segment capacitance 30 to the ground node. Grounding the COM0 and SEG0 signals in Ess’s Figure 12 implies the same grounding as shown in Figure 12B of Appellant’s Specification.

(4) VSEG

Appellant argues that Ess does not disclose segment resetting because Ess’s signal “VSEG *does not* represent the voltage across a single LCD segment terminals, and does not constitute an evidence of the signal resetting in Ess.” Appeal Br. 21. As explained, claim 1 does not recite

segment resetting so Appellant's argument is not supported by corresponding language in the claim. *See Self, supra*.

In any case, as noted, Ess's Figure 12 shows grounding of COM0 and SEG0 signals across a segment capacitance during a reset period, similar to the segment resetting shown in Appellant's Figure 12B. Thus, we are not persuaded by this argument.

(5) Bar's Alleged Failure

Appellant argues "[t]he Office Communication fails to show that Bar teaches 'first and second phases' of operation of the LCD, and after the first phase and before the second phase 'segment resetting' is performed 'depending on display data provided to the LCD controller.'" Appeal Br. 22–23. The Examiner relied on Ess, not Bar, for this teaching. Non-Final Act. 13–16. Thus, Appellant's argument attacks Bar individually, and does not consider what the combination of Ess and Bar would have signified to a person of ordinary skill in the art. "Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references." *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)).

(6) Timeslots versus Phases of Operation

In the Reply Brief, for the first time, Appellant asserts that Ess's "timeslots" do not correspond to the claimed "phases of operation." Reply Br. 5. New arguments are not considered in a reply brief absent a showing of good cause, which has not been made here. 37 C.F.R. § 41.41(b)(2) ("Any argument raised in the reply brief which was not raised in the appeal brief, or is not responsive to an argument raised in the examiner's answer,

including any designated new ground of rejection, will not be considered by the Board for purposes of the present appeal, unless good cause is shown”).

Even if we did consider Appellant’s argument, we would find it unpersuasive because it is a mere assertion without any explanation of why the first halves of Ess’s timeslots do not correspond to the claimed “phases of operation.” *See* Ans. 8. Attorney argument is not evidence. *Icon Health and Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017).

B. Remaining Claims

No separate arguments are presented for the remaining dependent claims, which fall for the same reasons stated for their respective independent claims. *See* 37 C.F.R. § 41.37(c)(1)(iv) (“the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately”).

CONCLUSION

The Examiner’s rejections of claims 1–3, 6, 7, 9–11, and 15–17 under 35 U.S.C. § 103 are affirmed, but the rejections of claims 4, 5, 8, 12–14, and 18–20 are reversed.

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–20	112	Written description		1–20
1–3, 6, 7, 9–11, 15–17	103	Ess, Bar	1–3, 6, 7, 9–11, 15–17	

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Overall Outcome			1-3, 6, 7, 9-11, 15-17	4, 5, 8, 12-14, 18-20
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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART