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Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GEUN-WOO PARK

Appeal No. 2002-0587
Application No. 08/922,300

HEARD: February 11, 2003

Before THOMAS, BARRY, and LEVY, Administrative Patent Judges.
LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-11, which are all of the claims pending in this application.

BACKGROUND

Appellant's invention relates to a display device with a power interrupt delay function. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced as follows:

1¹. A display device with a power interruption delay function, comprising:

a pulse width modulation controller for generating a pulse width modulation signal under the control of a microcomputer;

a current amplifier for amplifying current in response to the pulse width modulation signal from said pulse width modulation controller;

a horizontal/vertical processor for generating a square wave pulse signal under the control of said microcomputer;

a horizontal driver for generating a drive pulse signal in response to the square wave pulse signal from said horizontal/vertical processor;

a horizontal deflection coil for horizontally deflecting electron beams generated in said display device;

a S-correction capacitor connected in series between said horizontal deflection coil and a ground terminal, for correcting a linearity of center-to-left and right sides of a screen;

a horizontal output circuit for charging and discharging energy on said horizontal deflection coil and said S-correction capacitor in response to an output signal from said current amplifier and said drive pulse signal from said horizontal driver;

a horizontal/vertical processor constant voltage circuit for supplying a constant voltage to said horizontal/vertical processor in response to an input voltage; and

power interruption delay charging means for gradually lowering said input voltage to said horizontal/vertical processor constant voltage circuit when power supplied to said display device is interrupted.

¹ A substantially correct copy of claim 1 appears appended to the brief and reply brief. A correct copy of claim 1 is reproduced in the decision.

considered the subject matter on appeal, the rejection advanced by the examiner, and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellant's arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the invention as set forth in claims 1-11. Accordingly, we affirm.

Appellant asserts (brief and reply brief, page 5) that "[c]laim 1 stands or falls alone, and claims 2-11 stand or fall with claim 1," and (reply brief, page 6) that "[s]ince the patentability of all the claims depend upon the patentability of claim 1, then only the limitations of claim 1 need be addressed." Accordingly, we consider claim 1 to be representative of the group.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071,

1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d

1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner asserts (answer, page 4) that appellant's admitted prior art does not disclose "power interruption delay charging means for gradually lowering said input voltage to said H/V processor constant voltage circuit when power supplied to said display device is interrupted²." To overcome this deficiency in the admitted prior art, the examiner turns to Martin for a teaching of "a protection circuit for a display device which ensures screen protection in case of sudden failures or malfunctions of circuits to the tube (see col. 1 lines 35-39), which ensures that the screen will not be damaged by a strong beam current (see col. 1 lines 5-8)" (answer, page 10-11). The examiner asserts (answer, page 5) that the diode capacitor network makes the voltage at the control grid 14 drop slowly even though its bias voltage -V1 is removed, and that it would have been obvious to utilize Martin's protection circuit with appellant's admitted prior art because it would protect the CRT display in case of sudden failure or malfunction of circuits to the tube.

² Appellant admits (brief, page 5) that the admitted prior art teaches all that is claimed except for this feature of the invention.

Appellant asserts (brief, pages 6 and 7) that:

It is well known in the art that control grid 14 in Martin's CRT(cathode ray tube) is not the same as a deflection yoke of a CRT. It is also well known that the bias voltage applied to a control grid does not have the same function as the horizontal and vertical synchronizing signals applied to the deflection yoke.

It is further well known in the art that a **H/V processor constant voltage circuit** . . . does not provide the bias voltage applied to a control grid of a CRT.

Appellant further asserts (id.) that "Martin does not discuss a **H/V processor constant voltage circuit** and thus does not address the issue of **gradually lowering an input voltage to a H/V processor constant voltage circuit.**"

From our review of Martin, we find that Martin discloses (col. 2, lines 64-72) that:

The control grid 14 is clamped to a negative DC bias voltage -V1 from the power supply by a diode 44 connected between voltage -V1 and the control grid 14 and a capacitor 45 connected between the control grid 14 and ground. The output of the unblank driver 22 thereby controls the voltage between the control grid 14 and the cathode 13 by controlling the voltage of cathode 13. This diode-capacitor network makes the voltage at the control grid 14 drop slowly even though its bias voltage -V1 is removed.

From this disclosure of Martin, we agree with appellant that a control grid is not the same as a deflection yoke of a CRT, and that the bias voltage applied to a control grid does not have the same function as the horizontal and vertical synchronization

signals applied to the deflection yoke. However, we find that Martin additionally discloses a horizontal deflection yoke 17 and vertical deflection yoke 18 (col. 2, lines 19-21). Horizontal deflection control circuit 36 drives the beam off of the screen when protection is required, by producing additional current through the horizontal deflection yoke 17 (col. 3, lines 40-44). In normal operation, the horizontal deflection of the beam is controlled by a signal from the horizontal or X-yoke drive 101 over line 55 at the base of NPN transistor 56. A second NPN transistor 58 is normally off and is connected across transistor 56 with a current limiting resistor 59 connected therebetween. Transistor 58 is normally off and current through transistor 56 controls the current through the horizontal deflection yoke 17. When it is necessary to protect screen 16, transistor 58 is turned on and additional and additional current is drawn through the coil of the horizontal deflection yoke 17 so as to drive the beam off of the screen. The voltage for transistor 58 is from either of voltage sources +V4 and +V5. These two bias voltages are arranged so that if one fails the other will be present (col. 3, lines 44-65). Martin further discloses (col. 3, lines 65-69) that "[t]he value of these bias voltages are chosen so that even if the power supply fails, these voltages decay off at a slow

enough rate so that transistor 58 will be turned on to cause the beam to be horizontally deflected off the screen."

From the disclosure of Martin that voltages +V4 and +V5 will decay off at a slow enough rate so that transistor 58 will be turned on to cause the beam to be deflected off of the screen if the power supply fails, we find that Martin teaches gradually lowering the input voltages +V4 and +V5 to the deflection yoke when the power supply to the display device is interrupted. Although we agree with appellant (brief, page 8) that modifying the admitted prior art by slowly dropping the voltage at the control grid as taught by Martin would only result in slowly dropping the voltage at the control grid in the admitted prior art, we find that Martin's additional teaching of slowly decaying the voltage to the horizontal deflection yoke would have suggested to an artisan gradually dropping the voltage of the voltage source V1 of the horizontal/vertical constant voltage circuit of the admitted prior art. Accordingly, we do not agree with appellant's assertion (brief, page 8) that "Martin only teaches, slowly dropping the voltage at the **control grid** 14 of the monitor" (underlining added).

With respect to appellant's assertion (reply brief, page 7) that the present invention is directed toward a display device

with a power interruption delay function in which a power interruption delay charging circuit is provided to prevent a horizontal output transistor from being damaged, we observe that appellant's specification discloses (page 4) that "[i]f the horizontal output circuit is damaged, no horizontal deflection is performed on the screen of the display device, thereby causing a single line to be vertically drawn on the center of the screen. As a result, the user cannot recognize the information displayed on the screen." In *Martin*, the horizontal deflection control circuit provides protection to the screen (col. 3, line 56), which is not the same as the user not being able to recognize the information on the screen. However, as long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor. See *In re Dillon*, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991) and *In re Beattie*, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992).

Appellant opines (reply brief, page 9) that "[i]t might have been obvious to replace *Martin*'s resistors 61 and 62 with a diode-capacitor network similar to diode 44 and capacitor 45 in

Martin, in order to gradually lower the bias voltage to transistor 58" and asserts (id.) that "however, transistor 58 is not equivalent to H/V processor constant voltage circuit 131 utilized by the Admitted prior art of Appellant's Fig. 2." We need not address the issue of whether it would have been obvious to replace Martin's resistors 61 and 62 with a diode capacitor network because the teaching of Martin that the voltages decay off at a slow enough rate to turn on transistor 58 inherently suggests that an RC circuit is used which will discharge according to a time constant. In addition, appellant does not elaborate as to why appellant considers transistor 58 to not be equivalent to H/V processor constant voltage circuit 131. We observe that the H/V processor constant voltage circuit 131 is found in the admitted prior art. Because Martin teaches providing a horizontal deflection control circuit with voltage source +V4 and +V5 that cause the horizontal deflection yoke to discharge by providing a slow voltage decay to transistor 58 of the horizontal deflection output circuit, we find that an artisan would have been taught to provide the slow voltage decay circuit of the horizontal deflection control circuit 36 of Martin at the voltage source V1 of the admitted prior art because as stated in the admitted prior art (page 3):

If the power supply to the display device is interrupted during the operation of the display device, the H/V processor constant voltage circuit operates no longer due to interruption of the voltage. As a result, the H/V processor operates no longer, as well. As the H/V processor operates no longer, it outputs no pulse signal thereby causing the high voltage charged on the horizontal deflection coil and S-correction capacitor not to be discharged. As a result, a voltage of about +120 to 160 V remains.

Thus, the admitted prior art recognizes that when the power supply is interrupted, the high voltage charged on the horizontal deflection coil is not discharged. As discussed above, Martin teaches (col. 3, lines 55-59) that "[w]hen it is necessary to protect the screen 16, the transistor 58 is turned on and additional current is drawn through the coil of the horizontal deflection yoke 17 so as to drive the beam off the screen." Thus, we find that it is the combined teachings of the admitted prior art and Martin which suggests the combination of the admitted prior art and Martin.

It is further argued (reply brief, page 9) that X drive 99 in figure 2 of Martin is an AC source which provides a voltage to horizontal deflection circuit 23 of Martin, and that Martin does not suggest gradually lowering the input voltage to X drive 99 if a power failure occurs. We find that in Martin, horizontal deflection circuit 23 operates during normal operation of the

device. However, the issue is what Martin teaches in the situation where the power supply fails. As discussed above, Martin teaches that when the power supply fails, the horizontal deflection control circuit 36 provides protection by causing the voltage to transistor 58 to decay off at a slow enough rate to so that transistor 58 will be turned on to cause the beam to be horizontally deflected off the screen.

From all of the above, we find that the prior art suggests the invention set forth in appellant's claim 1, and that appellant has not successfully rebutted the prima facie case of obviousness. Accordingly, the rejection of claim 1 under 35 U.S.C. § 103(a) is affirmed. Claims 2-11 fall with claim 1. Accordingly, the rejection of claims 1-11 under 35 U.S.C. § 103(a) is affirmed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-11 under 35 U.S.C. § 103(a) is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136 (a).

AFFIRMED

JAMES D. THOMAS)	
Administrative Patent Judge)	
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