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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIROMITSU KAWAMURA,
KATSUMI KOBARA,
and TAKAO KAWAMURA

Appeal No. 96-1478
Application 08/232,459[1]

HEARD: March 9, 1999

Before BARRETT, KRASS, and FRAHM, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

[1] Application for patent filed April 22, 1994, entitled "Color Cathode-Ray Tube (CRT) And Method Of Producing The Same," which is a continuation of Application 07/850,968, filed March 11, 1992, now abandoned.

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-8 and 10-15. Claim 9 has been canceled.

We reverse.

BACKGROUND

The invention is directed to a color cathode ray tube (CRT) with a black matrix layer having an antireflection layer disposed on the surface of the CRT face plate without being interposed between the face plate and the black matrix layer.

Claim 1 is reproduced below.

> 1. A color cathode-ray tube (CRT) including an antireflection layer and a black matrix layer on the inner surface of a face plate thereof, wherein said antireflection layer contains SiO_2 fine particles and is deposited on the surface of said face plate without being interposed between said face plate and said black matrix layer.

The examiner relies on the following prior art:

Kato	4,717,856	January 5, 1988
Iwasaki[2]	5,177,400	January 5, 1993

[2] Appellants claim the foreign filing priority benefit under 35 U.S.C. § 119 of Japanese Application 3-044664, filed March 11, 1991, and provides a copy of the foreign application. However, since no translation has been provided, the foreign application does not technically overcome the date

(filed May 3, 1991)

Claims 1-8 and 10-15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kato and Iwasaki.

We refer to the Final Rejection (Paper No. 19) and the Examiner's Answer (Paper No. 25) (pages referred to as "EA__") for a statement of the examiner's position and to the Brief (Paper No. 24) (pages referred to as "Br__") and the Reply Brief (Paper No. 27) (pages referred to as "RBr__") for a statement of appellants' position.

OPINION

Figure 2 of Kato shows a CRT structure which appears structurally very similar to appellants' figure 1. Kato discloses carbon stripes 3 of a black matrix applied to the inner surface of the face plate of the CRT; the stripes and open portions of the face plate between the stripes are covered by a film 4 whose main component is aluminum oxide (Al_2O_3); and phosphor stripes 5R, 5G, 5B are formed on the film 4 between the black stripes. Kato discloses that the Al_2O_3 film has a thickness "ranging from 0.2 μm to 3 μm after

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of Iwasaki. See 37 CFR § 1.55 (translation required for applications not in the English language when necessary to overcome the date of a reference relied upon by the examiner).

being baked" (col. 3, lines 18-19). Two differences from the subject matter of claim 1 are: (1) film 4 is Al_2O_3, not SiO_2 as claimed; and (2) film 4 is not disclosed to be an "antireflection layer" as claimed, but is applied over the carbon stripes as a protective layer to keep the carbon layer from turning white during the baking process and to avoid browning of the glass of the face plate due to the electron beam (col. 1, lines 61-68; col. 3, lines 47-50; col. 4, lines 3-5 and lines 16-23). Kato does not disclose any optical properties of the film 4.

Iwasaki discloses a transparent inorganic film 5 interposed between the optical multilayered interference film 2 and the face panel 1. The film 5 "does not function as the optical thin film layer" (col. 5, lines 34-35). "[T]he transparent inorganic material film 5 serves as a barrier for preventing the optical thin film layer of titanium dioxide ($Ti0_2$), a high-refractive-index film, from effecting a chemical reaction directly with the glass surface of the face panel 1 by virtue of the electron energy." (Col. 5, lines 37-42.) "If silicon dioxide (SiO_2) or aluminum oxide (Al_2O_3) is used as the transparent

inorganic material film 5, these materials are preferably formed to have a thickness of 0.05 micrometer or less or a thickness of 0.5 micrometer or more, respectively." (Col. 5, line 65 to col. 6, line 2.)

The examiner finds that "[t]he Iwasaki reference discloses the equivalence of the Al_2O_3 and SiO_2 layers for the purpose of protection, not (anti)reflection" (EA6). The examiner concludes that "[i]t would have been obvious to one having ordinary skill in the art that the silicon dioxide film of Iwasaki could replace the aluminum oxide film of Kato since Iwasaki discloses their equivalence" (EA3). The examiner states that "[a]n inherent feature resulting from providing this SiO_2 layer would be the antireflection property" (EA6).

Appellants argue that "Kato specifically discloses only the utilization of Al_2O_3 film and only protective purposes without any suggestion regarding antireflection properties" (emphasis omitted) (Br11). Appellants refer to the declaration of Mr. Yoshifumi Tomita, which describes that Al_2O_3 functions as a reflection-enhancing film, whereas SiO_2 functions as an antireflection film (Br13). The examiner

acknowledges that Al_2O_3 and SiO_2 have different optical properties, but relies on the inherent property which would result from the substitution of one film or another (EA6). Appellants argue that Iwasaki does not teach the formation of a black matrix layer on an inner surface of a face plate of a CRT (Br14). Appellants further argue that Iwasaki does not disclose Al_2O_3 and SiO_2 as "equivalents in terms of index of refraction nor in terms of antireflection properties" (emphasis omitted) (Br16).

We disagree with the examiner's reasoning that the claimed invention would have been obvious because substitution of a SiO_2 layer for the Al_2O_3 layer in Kato would inherently provide an antireflective property. First, the examiner's use of inherency in the obviousness rejection is based on hindsight. "That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown." In re Spormann, 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1966). A retrospective view of inherency is not a substitute for some teaching or suggestion supporting an obviousness rejection. See In re Newell, 891 F.2d 899, 901, 13 USPQ2d 1248, 1250 (Fed.

Cir. 1989). The motivation to make a specific structure "is not abstract, but practical, and is always related to the properties or uses one skilled in the art would expect the [structure] to have, if made." In re Gyurik, 596 F.2d 1012, 1018, 201 USPQ 552, 557 (CCPA 1979). It appears to us that the examiner has used the knowledge from appellants' disclosure that SiO_2 is antireflective as a roadmap to search for a plausible reason to replace the Al_2O_3 in Kato with a SiO_2 to provide an inherent property. Neither Kato nor Iwasaki discloses using Al_2O_3 or SiO_2 layers for their optical properties. The optical properties are not similar since Mr. Tomita's declaration states that Al_2O_3 is reflection enhancing and SiO_2 is antireflective. Therefore, one of ordinary skill would not have sought to combine the references based on optical properties because they are opposite. In our opinion, the examiner has not established that the claimed subject matter including an antireflection layer would have been obvious to one of ordinary skill in the art.

Second, the examiner fails to show that a SiO_2 layer as taught by Iwasaki would be expected to inherently have an

antireflective property if substituted in Kato. Inherency requires a certainty that a property or characteristic exists. "Inherency, however, may not be established by probabilities or possibilities." Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1269, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991) (quoting In re Oelrich, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981)). Kato discloses that the Al_2O_3 film has a thickness "ranging from 0.2 μm to 3 μm after being baked" (col. 3, lines 18-19). Iwasaki discloses that the film 5 does not function as an optical thin film layer (col. 5, lines 32-36) and the film thickness is chosen to be 0.05 microns or less or 0.5 microns or more to eliminate any influence on the optical property of the optical multilayered interference film 2 (col. 5, line 57, to col. 6, line 2). One of ordinary skill in the art substituting a SiO_2 layer for the Al_2O_3 layer in Kato for the purpose of protecting the carbon stripe, would have used the film thickness of Kato because Kato does not have the interference film 2 of Iwasaki. Appellants disclose SiO_2 antireflection layer thicknesses of 0.3 microns and 0.5 microns (e.g., figure 4). The examiner has not shown that a

SiO_2 layer having a thickness in the range of 0.2 μm to 3 μm, as taught in Kato, would be expected to inherently have an antireflection property throughout the range. That the material of the layer is the same is not sufficient to establish inherency of a property where the property depends on other factors such as thickness. There is no motivation in Kato to select a thickness to provide an antireflection property since optical properties are not discussed.

For the reasons discussed above, we conclude that the examiner has failed to establish a prima facie case of obviousness. Accordingly, the rejection of claims 1-8 and 10-15 is reversed.

REVERSED

ERROL A. KRASS)
Administrative Patent Judge)
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) BOARD OF PATENT

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ERIC S. FRAHM Administrative Patent Judge	)	

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