

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte BENOIT BUTAYE and PATRICE GAMAND

Appeal No. 2006-3351
Application No. 10/011,882

ON BRIEF

Before HAIRSTON, RUGGIERO, and LUCAS, *Administrative Patent Judges*.

LUCAS, *Administrative Patent Judge*.

DECISION ON APPEAL

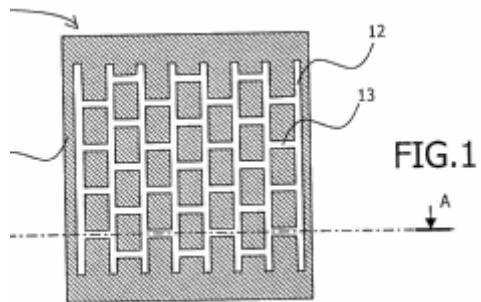
This is a decision on appeal from the final rejection of claims 1 to 8.

Invention

Appellants' invention relates generally to an insulation device intended to avoid the propagation of electromagnetic radiation produced by an electric element integrated with a low-resistivity substrate. The device includes a plurality of isolation trenches in the substrate which are substantially parallel to each other running in one direction, containing a resistive material, and other isolation trenches running parallel with each other in another direction perpendicular to the first direction. The latter isolation trenches are indicated to be isolation transverses. In the claimed embodiments, the isolation transverses are both perpendicular to the set of isolation trenches, and "arranged so that two transverses included in two adjacent series are not in each other's line of extension." In effect, the line of each transverse is offset at each intersecting

trench to produce a pattern similar to that of a brick wall.

Appellants' Figure 1 is reproduced below:



Appellants' Figure 1 is said to depict a substrate with isolation trenches in brick wall pattern.

Claim 1 is representative of the claimed invention and is reproduced as follows:

1. An insulation device for avoiding the propagation of electromagnetic radiation produced by at least one electric element integrated with a low-resistivity substrate, said insulation device including a plurality of isolation trenches which stretch out in the substrate and are substantially parallel to each other, said trenches containing a resistive material which has a higher resistivity than the resistivity of the substrate, characterized in that it includes a plurality of series of isolation transverses which have a depth that is close to that of said isolation trenches, and which contain a resistive material that has a higher resistivity than the resistivity of the substrate, each series being realized transversely between two adjacent

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isolation trenches and arranged so that two transverses included in two adjacent series are not in each other's line of extension.

References

The references relied on by the Examiner are as follows:

Shibuya	4,247,952	Jan. 27, 1981
Akram	6,306,727	Oct. 23, 2001
Johansson et al (Johansson)	WO97/45873	Dec. 04, 1997
Yue et al (Yue)	WO98/50956	Nov. 12, 1998

Rejections At Issue

Claims 1, 2 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Johansson in view of Akram, as set forth in Final Office Action mailed on July 8, 2005.

Claims 3 to 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Johansson in view of Akram as applied to claim 1 above, and further in

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view of Yue, as set forth in Final Office Action mailed on July 8, 2005.

Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Johansson in view of Akram as applied to claim 1 above, and further in view of Shibuya, as set forth in Final Office Action mailed on July 8, 2005.

Throughout our opinion, we make references to the Appellants' briefs, and to the Examiner's Answer for the respective details thereof.¹

OPINION

With full consideration being given to the subject matter on appeal, the Examiner's rejections and the arguments of the Appellants and the Examiner, for the reasons stated infra, we affirm the Examiner's rejections of claims 1 to 8 under 35 U.S.C. § 103.

¹ Appellants filed an Appeal Brief on January 12, 2006, and a corrected Appeal Brief on September 18, 2006. Appellants filed a Reply Brief on May 22, 2006. The Examiner mailed an Examiner's Answer on March 20, 2006.

I. Whether the Rejection of Claims 1, 2 and 6 Under 35 U.S.C. § 103 in view of Johansson et al. (Johansson) in view of Akram is proper?

Appellants proffer two lines of arguments against this rejection, one based on technical grounds concerning the teachings of the prior art concerning isolation trenches in an electronic substrate, and one based on the propriety of combining the two references, Johansson and Akram.

DEPTH OF THE TRENCHES

Appellants assert that the applied art fails to teach or suggest a plurality of isolation transverses which have a depth that is close to that of the isolation trenches, as required by independent claim 1. (Reply Brief, page 5).

Examiner presents Johansson, Figure 4, which teaches "two series of trenches, one series perpendicular to the other, which has the same depth and are arranged in a mesh like pattern. ([Johansson,] Page 5, Page 9 and Fig.4)" (Answer, Page 3).

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Appellants argue that in Johansson "a first set of identical trenches is formed; and that a second set of identical trenches is formed, with the first and second sets of trenches are perpendicular" (Reply Brief, pages 5 to 7).

Thus the reference discloses that the trenches of the first set are identical to one another and that the trenches of the second set of trenches are identical to one another. However, the reference is silent on whether the trenches of the first set of trenches are identical to the trenches of the second set of trenches; and most notably the reference is silent on the relative depth of the respective trenches of the first and second sets of trenches.

Thus, Appellants assert, the reference does not disclose "*the featured plurality of series of isolation transverses [that] have a depth that is close to that of the isolation trenches*" (Appellants' Brief, Page 8, bottom).

Johansson describes Figure 4 as follows:

Fig. 4 shows a view of a portion of a substrate 401 from above in which a preferred pattern of trenches 403 has been etched. The trench pattern is then used under an inductor for reducing the losses to the substrate. The pattern comprises a first set of several straight identical trenches located in parallel to each other and having an equal spacing and also a second set of identical trenches located in parallel to each other and equally spaced, the trenches of the second set being perpendicular to those of the first set [Johansson, Page 9, middle].

From the above paragraph, we find evidence that it was within the prior art at the time of filing that both sets of perpendicular trenches would be at the same depth. Johansson teaches that ". . . a preferred pattern of trenches 403 has been etched." A person of ordinary skill in this art would produce this single pattern, comprising both sets of trenches, by a single set of etching operations as described in Johansson on page 3, middle. Certainly, if any more complicated etching operation were intended by Johansson, leading

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to the trenches being at different depths, then such an operation would be indicated in the specification. The purpose of these trenches is the same as the claimed invention, isolation to reduce losses to the substrate. We find that the scope and content of the prior art, and the level of ordinary skill in the pertinent art lead us to conclude that it would be obvious to etch the two sets of trenches to the same depth. (See *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006)).

COMBINING THE ART

Appellants assert that the rejection of claims 1, 2 and 6 is improper because the combination of the references, Johansson and Akram, was motivated by hindsight (Reply Brief, page 7, bottom). More specifically, "... one skilled in the art would not be motivated to overcome the deficiencies of Johansson..."

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via the teachings of Akram as these references lie in disparate areas of feature processing" (Reply Brief, Page 8, middle).

As quoted in *In re Bigio*, 381 F.3d 1320, 1324, 72 USPQ2d 1209, 1211 (Fed Cir 2004), "Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986); See also *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979)." In this case, the Johansson and the Akram patents both refer to the same field of endeavor as Appellants' invention, the creation of isolation

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regions in a substrate by forming trenches in a special pattern to increase isolation and reduce losses.

(Johansson, Pages 8 to 9; Akram, column 3, top; Appellants' specification page 1, top). Improvements in the techniques for forming the trenches taught by Akram to avoid the bird's beak undergrowth do not detract from its teaching of the isolation technology and being part of the same field of endeavor.

Appellants further assert that Akram "teaches away" from the claimed invention, as "one of ordinary skill in the art would be discouraged from following the path set out in the portion of *Akram* relied upon in the Office Action due to the deleterious effects that this path garners" (Reply Brief, Page 9, middle). Examiner relied upon Figures 2 and 2A of Akram, which are labeled prior art. Akram, however, was not cited for teaching the conventional trench formation techniques using local oxidation and field oxide (FOX),

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but rather as evidence that the brick pattern for the isolation trenches is part of the scope and content of the prior art, however constructed. Akram is clear evidence that such teaching was part of the prior art.

For the reasons stated above, the Examiner's rejection of claims 1, 2 and 6 under 35 USC § 103(a) is affirmed.

II. Whether the Rejection of Claims 3 to 5 Under 35 U.S.C. § 103(a) in view of Johansson, Akram and Yue is proper?

Appellants present no new arguments traversing the rejection of claims 3 to 5, but rather indicate that these claims are dependent directly or indirectly on claim 1, which is traversed in the previous section. Since we affirm the rejection of claim 1 for reasons indicated *supra*, the rejection of claims 3 to 5 is likewise affirmed.

Therefore, we affirm the Examiner's rejection of claims 3 to 5 under 35 U.S.C. § 103(a).

**III. Whether the Rejection of Claims 7 and 8 Under 35 U.S.C. § 103(a) in view
of Johansson, Akram and Shibuya is proper?**

Appellants present no new arguments traversing the rejection of claims 7 and 8, but rather indicate that these claims are dependent directly or indirectly on claim 1, which is traversed in the first section.

Since we affirm the rejection of claim 1 for reasons indicated *supra*, the rejection of claims 7 and 8 is likewise affirmed.

Therefore, we affirm the Examiner's rejection of claims 7 and 8 under 35 U.S.C. § 103(a).

Other Issues

In the Examiner's Answer, on page 6, middle, and at the top of page 7, Examiner used the word "tolerance" instead of the word "depth" of the trenches. Appellants' comments on that misstatement on pages 5 and 6 of the Reply Brief are noted, but do not affect the conclusions concerning the issues.

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Conclusion

In view of the foregoing discussion, we affirm the rejection under 35 U.S.C. § 103(a) of claims 1 to 8.

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).

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AFFIRMED

KENNETH W. HAIRSTON)
Administrative Patent Judge)
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) BOARD OF PATENT
JOSEPH F. RUGGIERO)
Administrative Patent Judge)
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