

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(2) is not binding precedent of the Board.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. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

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BOARD OF PATENT APPEALS
AND INTERFERENCES

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

~~Ex parte MASAHITO HAYAKAWA~~

Appeal No. 95-392
Application 97/943,569

ON BRIEF

Before LYDDANE, FRANKFORT and CRAWFORD, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

¹ Application for patent filed September 11, 1992.

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Application 07/943,569

DECISION ON APPEAL

This is a decision on appeal from the examiner's refusal to allow claims 1 through 15 as amended subsequent to the final rejection in a paper filed April 21, 1994 (Paper No. 10). Claims 1 through 15 are all of the claims in this application.

Appellant's invention relates to a fast atom beam source. Claim 1 is representative of the subject matter on appeal and a copy of that claim, as it appears in the Appendix to appellant's brief, is attached to this decision.

The sole prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Nagai et al. (Nagai)	63-43248	Feb. 24, 1988
(Japanese Kokai)		

The appealed claims stand rejected under 35 U.S.C. § 102(b) and § 103 as follows:

a) claims 1 through 3, 5, 7, 9, 11, 12 and 14 under 35 U.S.C. § 102(b) as being anticipated by Nagai; and

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b) claims 4, 6, 8, 10, 13 and 15 under 35 U.S.C. § 103 as being unpatentable over Nagai.

Rather than reiterate the examiner's full statement of the above-noted rejections and the conflicting viewpoints advanced by the examiner and appellant regarding those rejections, we make reference to the examiner's answer (Paper No. 16, mailed October 26, 1994) for the examiner's complete reasoning in support of the rejections, and to appellant's brief (Paper No. 15, filed August 29, 1994) for appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellant's specification and claims, to the applied prior art reference, and to the respective positions articulated by appellant and the examiner. As a consequence of our review, we have determined that we are unable to sustain the examiner's rejections of the appealed claims under 35 U.S.C. § 102 and § 103. Our reasons follow.

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Turning first to the examiner's rejection of appealed claims 1 through 3, 5, 7, 9, 11, 12 and 14 under 35 U.S.C. § 102(b) as being anticipated by Nagai, we note that the principal point of dispute between the examiner and appellant centers on whether the donut-shaped (annular) anode (11) of Nagai can fairly be viewed as being an "anode having the shape of a flat plate," as is required in appellant's independent claim 1. Like appellant, and in contrast with the examiner's position, it is our opinion that the ring-shaped or donut-shaped anode (11) of Nagai is not an anode having the shape of a "flat plate." Notwithstanding that it may be viewed as having flat front and back surfaces, we do not consider that one of ordinary skill in the art would reasonably view the annular, ring-shaped anode (11) of Nagai as having the shape of a "flat plate."

By definition, a "plate" is a "thin, flat sheet or piece of metal or other material, esp. of uniform thickness."² When this definition is viewed in the context of appellant's disclosure, it is clear that the terms "plate" and "plate-shaped"

² Webster's Encyclopedic Unabridged Dictionary of the English Language, Second College Edition, Portland House, 1989.

used therein connote a broad, flat, thin piece of material of uniform thickness like that seen forming the cathode (21) and anode (22) of Figure 1, as opposed to a donut or ring-shaped piece of material like that seen forming the anode (2) in Figure 2.³ Moreover, as is made clear by appellant's specification, having a flat plate cathode (21) and a flat plate anode (22) facing each other provides excellent directivity of the fast atom beam by having the electric lines of force in the discharge region between the plates and the positive gas ion flow along the lines of force perpendicular to the flat plates. By contrast, as is made clear in both appellant's specification (page 2) and in Nagai (translation, page 6) an anode with an annular or donut-shape, like that in appellant's Figure 2 and Figure 2 of Nagai, produces lines of electrical force that diverge around its central axis and are not perpendicular to the cathode, thus causing the resulting argon ions and ultimately the atoms produced to follow those lines of electrical force and leave the

³ In this regard, it is well settled that terminology used in appellant's claims is subject to the broadest reasonable interpretation of that terminology consistent with appellant's specification. See In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983); In re Tanaka, 551 F.2d 855, 860, 193 USPQ 138, 141 (CCPA 1977).

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emission outlets (e.g., 14 of Nagai) as divergent atom beams. Note particularly, the divergent lines of electrical force (16) seen in Figure 2 of Nagai. Accordingly, in this instance, after considering the entirety of appellant's disclosure to gain an understanding of what the inventor actually invented and intended to encompass by the appealed claims, we are of the view that the "anode having the shape of a flat plate" as set forth in independent claim 1 on appeal is distinct from, and does not read on, the annular, ring-shaped anode (11) of Nagai.

The examiner's position (answer, page 3) that the flat surface of the annular, ring-shaped anode (11) of Figure 2 of Nagai "produces an electric line of force which is perpendicular to the flat plate cathode 13 . . .," even if true, does nothing to change our view, since even the annular, donut-shaped anode (2) of appellant's Figure 2 would appear to be capable of producing an electric line of force which is perpendicular to the flat bottom surface (11) of the cathode therein. Moreover, we again note that Nagai discloses and shows the lines of electrical force (16) therein as diverging around the central axis of the anode and as clearly not being perpendicular to the cathode (13).

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Since we have determined that the fast atom beam source of Nagai does not disclose, teach or suggest an anode having the shape of a flat plate, it follows that we do not consider Nagai to be an anticipatory reference with regard to appellant's claim 1 on appeal. For this reason we will reverse the examiner's rejection of claim 1 and of dependent claims 2, 3, 5, 7, 9, 11, 12 and 14 under 35 U.S.C. § 102(b) as being anticipated by Nagai.

Regarding the examiner's § 103 rejection of dependent claims 4, 6, 8, 10, 13 and 15 under 35 U.S.C. § 103 as being unpatentable over Nagai, we note that even if the examiner's assertions concerning the modifications in these rejections are correct, which position is disputed by appellant, there is nothing the examiner relies upon which would overcome and provide for the deficiency in the Nagai fast atom beam source as already noted above. Thus, the examiner's rejection of these dependent claims under 35 U.S.C. § 103 relying on Nagai must also be reversed.

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In accordance with the foregoing, the decision of the
examiner rejecting appealed claims 1 through 15 is reversed.

REVERSED

William E. Lyddane

WILLIAM E. LYDDANE)
Administrative Patent Judge)

Charles E. Frankfort

CHARLES E. FRANKFORT)
Administrative Patent Judge)

BOARD OF PATENT
APPEALS AND
INTERFERENCES

Muriel E. Crawford

MURRIEL E. CRAWFORD)
Administrative Patent Judge)

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APPENDED CLAIM

Claim 1. A fast atom beam source comprising:

a casing; a cathode provided in said casing, said cathode having the shape of a flat plate and including a plurality of atom emitting holes therethrough; an anode provided in said casing opposite said cathode, said anode having the shape of a flat plate; means for introducing a gas into an area between said cathode and said anode; and a DC high-voltage power supply provided outside of said casing and operatively connected to said cathode and said anode for discharging said gas in said area between said anode and said cathode.