

The opinion in support of the decision being entered today is
not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEVEN E. REDER and
PRESTON E. PILLOW

Appeal 2006-2995
Application 10/012,821
Technology Center 1700

Decided: July 16, 2007

Before EDWARD C. KIMLIN, THOMAS A. WALTZ, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1-3 and 5-20. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

I. BACKGROUND

The invention “relates to the field of integrated circuit processing” (Specification 1:1). More particularly, the invention “relates to gas delivery systems for delivering a gas to a reactor.” (Specification 1:1-2). Claim 1 is illustrative of the subject matter on appeal:

1. A gas delivery system for delivering a gas to a reactor having a reactor chamber, a gas inlet port, and a gas exhaust port, the gas delivery system comprising:
 - a torch chamber having an outer wall extending along a first axis,
 - a torch injector extending into the torch at a first end of the torch chamber, the torch injector including at least two gas intake ports for receiving at least two gases where the two gas intake ports feed into two substantially coaxial tubes that are part of a gas injector section for expelling the at least two gases into the torch chamber, and
 - a gas outlet section at a second end of the torch chamber, the gas outlet section including a first tubing member disposed along a second axis and a gas outlet port connected to the first tubing member, the gas outlet port of the gas outlet section for engaging the gas inlet port of the reactor,where the torch chamber, the torch injector, and the gas outlet section of the gas delivery system are formed into a unitized structure with no resealable connections between them.

The Examiner relies on the following prior art references to show unpatentability:

Moslehi	US 5,082,517	Jan. 21, 1992
Glshanskii (as translated)	SU 1,763,802 A1	Sep. 23, 1992
Robbins	US 5,423,942	Jun. 13, 1995
Foster	US 5,526,984	June 18, 1996

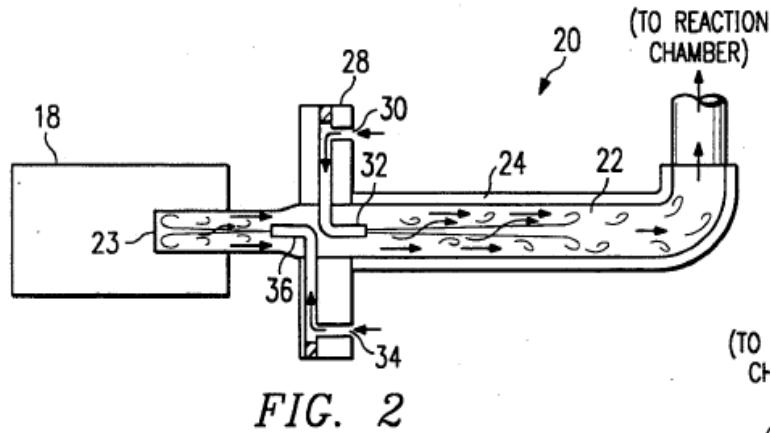
The rejections as presented by the Examiner are as follows:

1. Claims 1, 5, 7-10, 12, 13, 17, and 20 are rejected under 35 U.S.C. § 103(a) as unpatentable over Robbins in view of Moslehi;
2. Claims 2, 3, 6, 14-16, 18, and 19 are rejected under 35 U.S.C. § 103(a) as unpatentable over Robbins in view of Moslehi, and further in view of Foster; and
3. Claim 11 is rejected under 35 U.S.C. § 103(a) as unpatentable over Robbins in view of Moslehi, and further in view of Glshanskii.

II. DISCUSSION

All of the claims on appeal require a torch injector extending into a first end of a torch chamber and including at least two gas intake ports which “feed into two substantially coaxial tubes that are part of a gas injector section.” The dispositive issue on appeal is whether Robbins includes the two substantially coaxial tubes required by the claims.

Robbins illustrates a plasma containment tube 20 in Figures 2 and 3. Figure 2 illustrates a side view of containment tube 20 as shown below.



The Examiner finds that Robbins' describes a torch injector (capillary tube 32 as illustrated in Figure 2) extending into a first end of a torch chamber (shown as 22 in Figure 2) and including two gas intake ports (30, 34) "where the two gas intake ports feed into two substantially coaxial tubes (32, 36 respectively)." (Final Rejection 2).

Appellants contend that the gas injection tubes 32 and 36 of Robbins "are two separate tubes that point in two separate directions, and are not coaxial." (Br. 5).

According to Appellants "coaxial" means "to be coincident along a common axis" and "coincident" means "to occupy the same space." (Br. 5). The Examiner agrees that "coaxial" means "having coincident axis", citing a definition from the 10th edition of Merriam-Webster's Collegiate Dictionary (Answer 4). But according to the Examiner:

Robbin's Figures 2 and 3 specifically teach "at least two gas intake ports (30, 34) for receiving at least two gases, where the two gas intake ports feed into two substantially coaxial tubes (32, 36 respectively)" as claimed. That Robbins' tubes (32, 36 respectively) have "coincident axis", or equivalently collinear

axes, is demonstrated by Robbins' Figures 2 and 3. The Examiner emphasis [sic] Applicant's claimed requirement that the two gas intake ports "feed into two substantially coaxial tubes", thus, the entire length of the claimed tubes are not required to be "coaxial", only that Applicant's claimed tubes be, at one section of length, coaxial. Robbins teaches such an arrangement as described.

(Answer 4-5).

We cannot agree with the Examiner that the claim language encompasses the structure of Robbins. While, as observed by the Examiner "the entire length of the claimed tubes are not required to be 'coaxial,'" they are required to be coaxial at some point. As agreed upon by the Examiner, coaxial tubes must have a "coincident axis," in other words, their axes must share points in common. Appellants offer the apt example of coaxial cable. Coaxial tubes have one smaller tube inside a larger tube such that the two tubes share a common axis. Tubes 32 and 36 of Robbins are not coaxial at any point, i.e., their axes never share points in common. Instead, as pointed out by Appellants, tubes 32 and 36 are separate and point in opposite directions.

It appears that the Examiner may be relying upon the torch chamber wall as providing a structure coaxial with tube 32 and a structure coaxial with tube 36 to meet the coaxial limitation. But the claims require the substantially coaxial tubes be "part of a gas injector section extending into the torch chamber." The torch chamber is a separate structure, not part of the gas injector section. According to the claims, the *two* gas intake ports must feed into the substantially coaxial tubes *of the gas injector section*. The two gas intake ports (30, 34) of Robbins do not feed into substantially

Appeal 2006-2995
Application No. 10/012,821

coaxial tubes of the gas injector, i.e., tubes one around the other, but feed into separate tubes opposed to one another on different portions of the axis.

III. CONCLUSION

We determine that Robbins does not include the substantially coaxial tubes required by Appellants' claims. None of the other references, as applied by the Examiner, remedy the defect discussed above.

IV. DECISION

With regard to the Examiner's decision to reject claims 1-3 and 5-20 as obvious under 35 U.S.C. § 103(a), we reverse.

REVERSED

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