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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/014,248	01/15/2008	Ronald F. Spohn	21681	1235
27182	7590	01/29/2013	EXAMINER	
PRAXAIR, INC. LAW DEPARTMENT - M1-04 39 OLD RIDGEBURY ROAD DANBURY, CT 06810-5113			NAGPAUL, JYOTI	
			ART UNIT	PAPER NUMBER
			1773	
			MAIL DATE	DELIVERY MODE
			01/29/2013	PAPER

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BEFORE THE PATENT AND TRIAL APPEAL BOARD

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*Ex parte* RONALD F. SPOHN and DAVID WALTER PETERS

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Appeal 2012-001273  
Application 12/014,248  
Technology Center 1700

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Before ROMULO H. DELMENDO, JEFFREY T. SMITH, and  
GRACE KARAFFA OBERMANN, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from a final rejection of claims 2 through 24. We have jurisdiction under 35 U.S.C. § 6.

Appellants' invention is directed to a sweep vapor phase reagent dispensing apparatus and method of using the apparatus to deliver a vapor phase reagent to a deposition chamber. App. Br. 7-10. Claim 2 is illustrative of the subject matter on appeal and is reproduced below:

2. A vapor phase reagent dispensing apparatus comprising:

a vessel which comprises a removable top wall member, a sidewall member and a bottom wall member configured to form an internal vessel compartment to hold a source chemical up to a fill level and to additionally define an inner gas volume above the fill level;

said sidewall member having a protuberance that extends into the internal vessel compartment adjacent to the top wall member;

said top wall member and said sidewall member having opposing flat surfaces, wherein the opposing flat surfaces are optionally in contact with one another;

fastening means for securing said top wall member to said sidewall member through the opposing flat surfaces that are optionally in contact with one another;

said top wall member and said protuberance having opposing flat surfaces, wherein the opposing flat surfaces are not in contact with one another and at least a portion of the opposing flat surfaces are hardened;

a metal seal aligned and in contact with the hardened opposing flat surfaces of said top wall member and said protuberance;

a portion of the top wall member having a carrier gas feed inlet opening through which carrier gas can be fed into said inner gas volume

above the fill level to cause vapor of said source chemical to become entrained in said carrier gas to produce vapor phase reagent; and

a portion of the top wall member having a vapor phase reagent outlet opening through which said vapor phase reagent can be dispensed from said apparatus;

wherein said hardened opposing flat surfaces of said top wall member and said protuberance are formed by incorporating a hardening material into said opposing flat surfaces and wherein said hardened opposing flat surfaces of said top wall member and said protuberance have a hardness greater than the hardness of said metal seal.

Appellants, App. Br. 11, request review of the following rejections from the Examiner's final office action:

Claims 2-24 stand rejected under the nonstatutory obviousness-type double patenting rejection as unpatentable over claims 1-29 of copending Application No. 12/014,194.

Claims 2-24 stand rejected under the nonstatutory obviousness-type double patenting rejection as unpatentable over claims 1-25 of copending Application No. 12/014,270.

Claims 2-24 stand rejected under the nonstatutory obviousness-type double patenting rejection as unpatentable over claims 1-25 of copending Application No. 12/014,282<sup>1</sup>.

Claims 2-24 stand rejected under the nonstatutory obviousness-type double patenting rejection as unpatentable over claims 1-30 of copending Application No. 12/014,237.

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<sup>1</sup> Co-pending Application 12/014,282 issued as U.S. Patent No. 7,959,994 on June 14, 2011. Therefore, our discussion of this rejection will focus on the claims in the U.S. Patent.

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Claims 2-24 stand rejected under the nonstatutory obviousness-type double patenting rejection as unpatentable over claims 1-30 of copending Application No. 12/014,228.

#### OPINION

*The non-statutory obviousness-type double patenting rejection based on copending Application No. 12/014,194*

Appellants have not contested this rejection. App. Br. 14. Instead, Appellants offer to make a determination of the need to file a terminal disclaimer upon allowance of the claims of the instant application. *Id.*

Appellants do not cite any legal authority for the proposition that the mere offer to file a terminal disclaimer overcomes a rejection based on the judicially created doctrine of obviousness-type double patenting. Therefore, we affirm this rejection for the reasons given by the Examiner. Ans. 6-9, 25-26.

*The non-statutory obviousness-type double patenting rejections based on copending Applications 12/014,270, 12/014, 228, 12/014,282, and 12/014,237*

The dispositive issue on appeal for these obvious-type double patenting rejections is: Did the Examiner err in determining that Appellants' claims 2-24 directed to a vapor phase reagent dispensing apparatus are not patentably distinct from the apparatuses of claims 1-25 of copending Application No. 12/014,270, 1-25 of copending Application No. 12/014,282,

1-30 of copending Application No. 12/014,228 and of claims 1-30 of copending Application No. 12/014,237?<sup>2,3</sup>

We refer to the Examiner's Answer for a statement of the Examiner's rejection (Ans. 10-25).

According to Appellants, modern chemical vapor deposition and atomic layer deposition tools utilize ampoule systems to deliver precursor chemicals to a deposition chamber. Spec. ¶ [0004]; App. Br. 12. The ampoule systems can be categorized as sweep vapor phase reagent dispensing systems, bubbler vapor phase reagent dispensing systems, and dip tube liquid phase reagent dispensing systems. App. Br. 12.

The *sweep* vapor phase reagent dispensing system is described as delivering the precursor reagent as a vapor by heating a liquid precursor reagent source within the ampoule to vaporize at least a portion of the liquid source, feeding a carrier gas into the ampoule through an inlet opening and withdrawing the vapor phase precursor reagent and carrier gas from the ampoule through an outlet opening. *Id.*

A *bubbler* vapor phase reagent dispensing system delivers the precursor reagent as a vapor by heating a liquid precursor reagent source within the ampoule to vaporize at least a portion of the liquid source, feeding a carrier gas into the ampoule through a bubbler tube extended into the liquid source to near the bottom of the ampoule so that carrier gas exiting the

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<sup>2</sup> We will limit our discussion to independent claim 2 since Appellants have not argued any of the claims separately.

<sup>3</sup> Appellants have limited their arguments to the tube structure as the distinguishing feature between the claimed apparatus and the apparatuses of the copending Applications. Appellants have not argued the other structural limitations of the claimed apparatus.

bubbler tube will bubble upwardly through the liquid source. *Id.* The vapor phase precursor reagent and carrier gas are then withdrawn from the ampoule through an outlet opening. *Id.*

A *dip tube* liquid phase reagent dispensing system differs from the previously discussed systems in that a liquid phase precursor reagent instead of a vapor phase precursor reagent is withdrawn from the ampoule. *Id.* at 13. In the dip tube liquid phase reagent dispensing system, an inert gas is fed into the ampoule through an inlet opening to impose pressure on the volume of liquid phase reagent in the ampoule. *Id.* The liquid phase reagent is then withdrawn from the ampoule through a dip tube that extends from near the bottom of the ampoule upwardly. *Id.* The pressurization of the liquid phase reagent causes the liquid phase reagent to flow upwardly into the dip tube for discharge into a vaporization unit. Spec. ¶ [0177].

Appellants' claimed invention is directed to a sweep vapor phase reagent dispensing apparatus. Appellants argue the claims of the copending Applications are directed to either a bubbler vapor phase reagent dispensing system (copending Applications 12/014, 270 and 12/014,228) (App. Br. 14, 19) or a dip tube liquid phase reagent dispensing system (copending Applications 12/014, 282 and 12/014,237) (*id.* at 16-17). Appellants additionally argue that the copending Applications teach away from the claimed invention by respectively disclosing only either a bubbler vapor phase reagent dispensing system or a dip tube liquid phase reagent dispensing system. *Id.* at 15-16, 18-19.

We are unpersuaded by Appellants' arguments. As correctly noted by the Examiner, the devices of the copending Applications include either a bubbler tube or a dip tube while Appellants' independent claim 2 does not

positively recite such a structure. Ans. 13, 18, 22, 25. However, as also correctly noted by the Examiner, Appellants' independent claim 2 is written in open language and does not exclude the inclusion of a tube that functions as a bubbler tube or dip tube. *Id.* While Appellants argue that the claimed sweep system and the copending Applications' bubbler and dip tube systems are completely different from one another (App. Br. 15-19), Appellants have not shown that the claimed apparatuses of the copending Applications are structurally different from that claimed. As set forth above, in a sweep vapor phase reagent dispensing system the combination of a vapor phase precursor reagent and carrier gas are withdrawn from the ampoule through an outlet opening. Likewise, a vapor phase reagent dispensing system that utilizes a tube can also produce a combination of a vapor phase precursor reagent and carrier gas that are withdrawn from the ampoule through an outlet opening. It is well settled that language in an apparatus claim directed to the function, operation, intent-of-use, and materials upon which these apparatus components work, that does not structurally limit the apparatus components or patentably differentiate the claimed apparatus from an otherwise identical prior art apparatus, will not support patentability. *See, e.g., In re Rishoi*, 197 F.2d 342, 344-45 (CCPA 1952); *In re Otto*, 312 F.2d 937, 940 (CCPA 1963); *In re Ludtke*, 441 F.2d 660, 663-64 (CCPA 1971); *In re Yanush*, 477 F.2d 958, 959 (CCPA 1973).

Accordingly, we sustain the rejections of claims 2-24 under the nonstatutory obviousness-type double patenting for the reasons given above and presented by the Examiner.

ORDER

The rejection of claims 2-24 based on the ground of non-statutory obvious-type double patenting over 1-29 of copending Application No. 12/014,194 is affirmed.

The rejection of claims 2-24 based on the ground of non-statutory obvious-type double patenting over claims 1-25 of copending Application No. 12/014,270 is affirmed.

The rejection of claims 2-24 based on the ground of non-statutory obvious-type double patenting over claims 1-25 of copending Application No. 12/014,282 is affirmed.

The rejection of claims 2-24 based on the ground of non-statutory obvious-type double patenting over claims 1-30 of copending Application No. 12/014,237 is affirmed.

The rejection of claims 2-24 based on the ground of non-statutory obvious-type double patenting over claims 1-30 of copending Application No. 12/014,228 is affirmed.

TIME PERIOD

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).

AFFIRMED

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