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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/019,890	01/25/2008	Adrianus Johannes van der POL	2007P00097US01	1845
24737	7590	03/19/2014	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			VANDEUSEN, CHRISTOPHER	
			ART UNIT	PAPER NUMBER
			1774	
			NOTIFICATION DATE	DELIVERY MODE
			03/19/2014	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ADRIANUS JOHANNES VAN DER POL
and JAAK GEBOERS

Appeal 2012-010143
Application 12/019,890
Technology Center 1700

Before RICHARD M. LEBOVITZ, JEFFREY B. ROBERTSON, and
RAE LYNN P. GUEST, *Administrative Patent Judges*.

LEBOVITZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims to system for disinfecting components of an HVAC system, comprising, *inter alia*, a non-linear UV light source. The Examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 134. We affirm.

STATEMENT OF CASE

Claims 1-25 are pending and stand rejected by the Examiner as follows:

1. Claims 1-3, 6, 9-14, 21, and 23-25 under 35 U.S.C. § 103(a) as obvious over Bigelow (US 6,221,314 B1, issued Apr. 24, 2001) in view of Pelster (US Patent 5,387,400, issued Feb. 7, 1995).

2. Claims 4, 5, 18 and 19 under 35 U.S.C. § 103(a) as obvious over Bigelow and Pelster as applied to claims 1-3 above, and further in view of Scheir (US Published Patent Application 2003/0019505 A1, pub. Jan. 30, 2003).

3. Claims 7, 8, 20, and 22 under 35 U.S.C. § 103(a) as obvious over Bigelow, Pelster, and Scheir as applied to claim 4 above, and further in view of Doshi (US Published Patent Application 2004/0141875 A1, pub. Jul. 22, 2004).

4. Claim 15 under 35 U.S.C. § 103(a) as obvious over Bigelow and Pelster as applied to claims 1-3 and 13 above, and further in view of McEllen (US Published Patent Application 2004/0184949 A1, pub. Sep. 23, 2004).

5. Claim 17 under 35 U.S.C. § 103(a) as obvious over Bigelow and Pelster as applied to claim 1 above, and further in view of Matschke (US 6,700,128 B2, issued Mar. 2, 2004).

6. Claim 16 under 35 U.S.C. § 103(a) as obvious over McEllen in view of Pelster.

Claims 1 and 16 are representative and read as follows:

1. A system for disinfecting components of an HVAC system, comprising:
an air handling system defining an enclosed air flow path;

at least one air moving apparatus positioned within the air handling system for delivering air throughout the air handling system; and
at least one non-linear UV light source each connected to the air handling system at only a single end, the non-linear UV light source positioned within the air handling system for disinfecting air passing through the air handling system;
wherein the non-linear UV light source is operable to radiate UV light; and
wherein the non-linear UV light source is directly coupled to an adjacent reflection member adapted to intensify or direct UV light towards a desired location.

16. A system for disinfecting components of an HVAC system, comprising:
an air duct system defining an enclosed air flow path;
at least one air moving apparatus positioned within the air duct system for delivering air throughout the air duct system; and
at least one non-linear UV light source positioned within the air duct system for disinfecting air passing through the air duct system;
wherein the non-linear UV light source is operable to radiate UV light;
wherein the air duct system defines a substantially cylindrical geometry having an inner radius such that a perpendicular cross section of the air flow path defines a substantially circular geometry; and
wherein the non-linear source is a circular lamp having an outer radius just less than the inner radius of the cylindrical air duct system so as to reduce air flow disruption created by the presence of the circular lamp.

REJECTIONS OVER BIGELOW AND PELSTER

Rejection 1

The Examiner found that Bigelow describes the air handling system recited in claim 1, but not the claimed “non-linear UV light source.” (Ans. 5-6.) To meet this deficiency, the Examiner cited the teaching in Pelster of a non-linear UV lamp (*id.* at 6). The Examiner concluded it would have been obvious to one of ordinary skill in the art at the time of the invention “to

have provided a system wherein the UV light source was non-linear in the system of Bigelow '314, in view of Pelster '400, in order to provide a bulb of appropriate design.” (*Id.*)

Appellants contend that the skilled worker would not have combined Pelster with Bigelow because Pelster uses its light to produce ozone, while Bigelow teaches that ozone is destructive and detrimental (App. Br. 7-8). Appellants also argue that Pelster’s light source is not non-linear (*id.* at 8).

First, we address the issue regarding the type of light source. The Specification does not define the term “non-linear light source.” However, the Specification provides examples of non-linear light sources. For example, Figure 1 is said to show “exemplary schematic geometries of non-linear UV light sources associated with the present disclosure. Non-linear UV light sources include but are not limited to: spherical bulb lamps 10; circular lamps 20, elliptical lamps 30; square lamps 40; and point source lamps (not shown) such as LED's.” (Spec. 8:13-16). The Specification states that “[u]sing circular lamps and/or spherical bulb lamps significantly reduces flow disruption with respect to linear light sources. When air flow is disrupted, the HVAC system operates inefficiently. Non-linear light sources typically occupy less volume and thus provide for less air flow disruption.” (*Id.* at 10:5-8). The Specification also states that “non-linear light sources include a variety of geometries” which enable them to “disinfect substantially more surface area of a coil apparatus than linear light sources.” (*Id.* at 11:5-8).

Claims are interpreted in the context of the Specification of which they are part. *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). The Specification, as discussed above, discloses a plethora of non-linear light

sources. Based on this description, the ordinary skilled worker would have understood “a non-linear UV light source” to mean a light source, such as a lamp, which has a non-linear shaped bulb and geometry.

Having interpreted the claim term, we next apply this interpretation to Bigelow and Pelster. The bulb described in Bigelow is reproduced below:

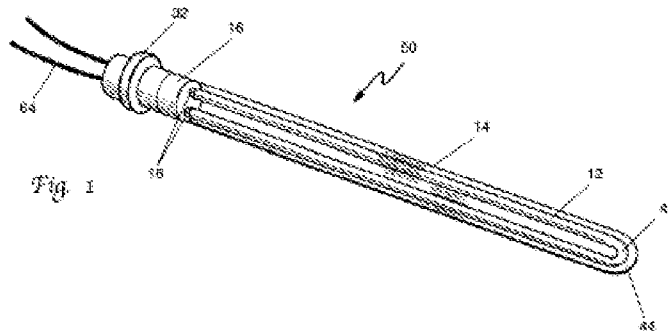


Fig. 1 of Bigelow shows UV lamp 50 with a linear shape.

As shown in the figure below, Pelster discloses a bulb consistent with the Specification’s examples of non-linear UV light sources:

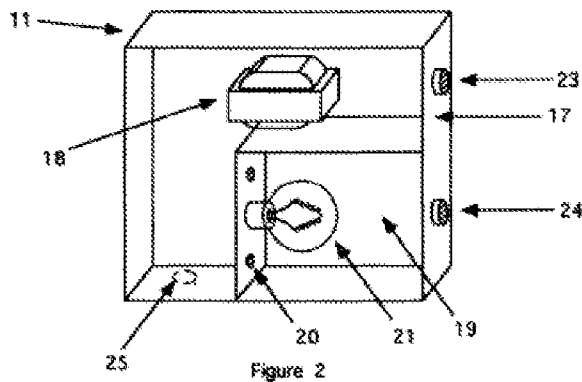


Fig. 2 of Pelster shows spherical UV light bulb 21 (col. 3, 46-59; Answer 7:10-11).

In view of the description of non-linear light sources in the instant Specification as referring to the geometry of the bulb, one of ordinary skill

in the art would understand that Pelster's light is non-linear because it is consistent with the examples of non-linear UV light sources in the Specification. On the other hand, Bigelow's bulb is linear because it is in the shape of straight line.

Appellants argue that Pelster's bulb is not non-linear because the filament is inside the bulb (App. Br. 8). This argument is not persuasive. Appellants did not provide sufficient evidence that such a configuration defines a bulb as "non-linear." As discussed above, one of ordinary skill in the art reading the Specification would have understood "non-linear" to mean the shape and geometry of the bulb. Appellants did not point to disclosure in the Specification that defines non-linear with respect to the filament or that defines a non-linear lamp source in such a way that distinguishes it from Pelster's UV light source.

Appellants also argue that "the teachings of Pelster and Bigelow are opposite from each other because a person having ordinary skill would avoid combining ozone with UV-C radiation." (App. Br. 8; Reply Br. 3-4.) Pelster's light produces ozone, while Bigelow seeks to avoid it (*id.* at 7-8). This is not disputed by the Examiner. However, the Examiner's rejection is not based on using Pelster's lamp in Bigelow's system. Rather, the Examiner stated:

However, the change in shape required of the Bigelow device as cited in the rejection above would not alter the function of the device itself. Further, the shape of the Pelster component does not determine the function of that component; as such, the implementation of this shape into the Bigelow device would not determine the function of the Bigelow device, nor would it change the function of the device from that taught.

(Ans. 22-23; emphasis added). In other words, the Examiner's rejection is based on the obviousness of using the shape of Pelster's bulb in Bigelow's system, not the specific UV wavelengths described in Pelster which would have produced the ozone.

The only difference between Bigelow and the claimed invention is the shape of the bulb. Bigelow specifically teaches that it was known to use UV germicidal lamps in air handling equipment as claimed (Bigelow, col. 1, ll. 25-30). The Examiner provided evidence that non-linear UV bulbs were known in the art. It would have been obvious to have used a spherical shaped bulb since the latter is conventional shape of a UV lamp as evidenced by Pelster. "A person of ordinary skill at the time of the invention interprets the prior art using common sense and appropriate perspective." *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1361 (Fed. 2011). A "person of ordinary skill is also a person of ordinary creativity, not an automaton." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). Using a non-linear UV light source in Bigelow's system is no more than ordinary creativity since such shaped bulbs were known in the UV lamp art.

Appellants argue that the non-linear shape has advantages, such as reducing resistance of the air flow around the bulb (App. Br. 9; Reply Br. 3). However, Appellants have not established that these advantages would have been unexpected by one of ordinary skill in the art,¹ rather than just inherent

¹ Once prima facie obviousness has been established, it can be rebutted with "a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected. The basic principle behind this rule is straightforward – that which would have been surprising to a person of ordinary skill in a particular art would not have

when using a spherical bulb for its known and conventional use as a UV germicidal lamp. Again, as indicated above by the Examiner's analysis, the Examiner has not proposed to put Pelster's bulb in Bigelow's system, but rather the Examiner found it obvious to have used a spherical non-linear bulb as Bigelow's UV lamp. We, therefore, affirm the rejection of claim 1 as obvious over Bigelow and Pelster.

The Examiner provided additional reasons to why claims 2, 3, 6, 9-14, 21, and 23-25 were obvious over the same combination of prior art (Answer 5-10), which Appellants did not rebut (App. Br. 9). We, thus, affirm the rejection of claims 2, 3, 6, 9-14, 21, and 23-25 for the reasons set forth by the Examiner.

As far as Grounds 2-5, the Examiner set forth a fact-based and well-reasoned basis for rejecting the claims (Ans. 10-20). Appellants did not identify a deficiency in these rejections (App. Br. 10-12) and we find none. We, therefore, affirm Rejections 2-5 for the reasons set forth by the Examiner.

REJECTION OVER MCELLEN IN VIEW OF PELSTER

Claim 16 is directed to a system for disinfecting components of an HVAC system which comprises, *inter alia*, a non-linear UV light source as in claim 1, and further where "the non-linear UV light source is a circular lamp having an outer radius just less than the inner radius of the cylindrical

been obvious." *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995). "[W]hen an applicant demonstrates substantially improved results . . . and states that the results were unexpected, this should suffice to establish unexpected results in the absence of evidence to the contrary." *Soni*, 54 F.3d at 751.

air duct system so as to reduce air flow disruption created by the presence of the circular lamp.”

The Examiner cited McEllen for its teaching of a system for disinfecting air with UV lamp (Ans. 20). With respect to the limitation regarding the inner radius of the air duct and the outer radius of the circular lamp, the Examiner found the limitation either taught by McEllen or obvious in view of it based on McEllen’s teaching that an appropriate air path needs to be provided in the duct (*id.* at 21). The Examiner acknowledged that McEllen describes a linear circular UV light source, but found it obvious to have used a non-linear light source in view of Pelster’s teachings as described above (*id.* at 21:20).

As argued above with respect to claim 1, Appellant argues that the light source taught by Pelster is not “non-linear.” For the reasons discussed above, Appellants’ argument is not persuasive that, based on the teachings of Pelster, “at least one non-linear UV light source” as recited in claim 16 was not disclosed in the prior art. (App. Br. 13).

With regard to McEllen, Appellants contends “the teachings of Pelster and McEllen are opposite from each other because a person having ordinary skill would avoid combining ozone with UV-C radiation.” (App. Br. 13-14). However, as explained for the combination of Bigelow and Pelster, the Examiner did not suggest importing Pelster’s bulb into McEllen, but rather on employing Pelster’s shape in McEllen (Ans. 21-22). For the same reasons articulated above for the combination of Bigelow and Pelster, we find these arguments to be unpersuasive. While a linear bulb is described in McEllen, there is insufficient evidence that the shape taught in Pelster would be ineffective in view of Pelster’s teaching that non-linear UV lamps were

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known in the art. We affirm the rejection of claim 16 over McEllen and Pelster.

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)(iv).

AFFIRMED

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