

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND**

GCE GAS CONTROL EQUIPMENT INC.,

Plaintiff/Counter-Defendant,

V.

3B MEDICAL MANUFACTURING, LLC,

Defendant/Counter-Plaintiff.

[illegible]

C.A. No. 8:22-cv-02550-TDC

DEMAND FOR JURY TRIAL

PLAINTIFF/COUNTER-DEFENDANT GCE'S RESPONSIVE CLAIM
CONSTRUCTION BRIEF

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	SEPARATION CARTRIDGE TERMS	1
A.	3B’s Brief Mischaracterizes the State of the POC Art in 2005 and Scope of the ’628 and ’614 Patents’ (Purported) Invention	1
B.	“Separation Cartridge” (’628 & ’614 Patents)	6
C.	“A First Bed Of Adsorbent Material Configured To Preferentially Adsorb Nitrogen; A First Inlet Oriented In A Direction, Wherein The First Inlet Is Configured To Direct A Flow Of Ambient Air To The First Bed; A First Outlet Oriented In The Direction, Wherein The First Outlet Is Configured To Expel Product Gas Flowing Downstream Of The First Bed; A Second Bed Of Adsorbent Material Configured To Preferentially Adsorb Nitrogen; A Second Inlet Oriented In The Direction, Wherein The Second Inlet Is Configured To Direct A Flow Of Ambient Air To The Second Bed; A Second Outlet Oriented In The Direction, Wherein The Second Outlet Is Configured To Expel Product Gas Flowing Downstream Of The Second Bed;” (’614 Patent)	12
III.	AXIS AND LINE TERMS	14
A.	“Axis” / “Disposed Along [An]/[The] Axis” (’628 Patent)	14
B.	“Fluid Flowing Along The First Line Contacts The Adsorbent Material Of The Bed” / “Fluid Flowing Along The Second Line Does Not Contact The Adsorbent Material Of The Bed” (Claims 1, 12) “Fluid Flowing Along The First Line Contacts The Adsorbent Material Of The First Bed” / “Fluid Flowing Along The Second Line Does Not Contact The Adsorbent Material Of The First Bed” / “Fluid Flowing Along The Third Line Contacts The Adsorbent Material Of The Second Bed” / “Fluid Flowing Along The Fourth Line Does Not Contact The Adsorbent Material Of The Second Bed” (Claim 13) (’614 Patent)	20
IV.	ADDITIONAL TERMS	22
A.	“Receptacle” (’628 & ’614 Patents).....	23
B.	“Selectively Removable [From A Receptacle]” (’628 & ’614 Patents)	25
V.	CONCLUSION	27

TABLE OF AUTHORITIES

	Page(s)
<u>Cases</u>	
<i>Abbott Labs. v. Sandoz, Inc.</i> 544 F.3d 1341 (Fed. Cir. 2008).....	7, 25
<i>Altair Instruments, Inc. v. Telebrands Corp. et al.</i> No. 19-cv-8967 (C.D. Cal., May 14, 2020) (Ex. 31)	18
<i>Apple Inc. v. MPH Techs. Oy</i> 28 F.4th 254 (Fed. Cir. 2022)	17
<i>Austin Hardware & Supply Inc., v. Allegis Corp.</i> No. 19-cv-785 (E.D. Wis., Sep. 29, 2020).....	18
<i>Aventis Pharms., Inc. v. Amino Chems. Ltd.</i> 715 F.3d 1363 (Fed. Cir. 2013).....	24
<i>Dogleg Right Partners, LP. v. Taylor Made Golf Co.</i> No. 07-cv-533, 2011 U.S. Dist. LEXIS 29474 (E.D. Tex. Mar. 22, 2011).....	18
<i>Edwards Lifescience LLC v. Cook Inc.</i> 582 F.3d 1322 (Fed. Cir. 2009).....	5
<i>Eon Corp. v. Silver Spring Networks, Inc.</i> 815 F.3d 1314 (Fed. Cir. 2016).....	17
<i>Fenner Invs., Ltd. v. Cellco P’ship</i> 778 F.3d 1320 (Fed. Cir. 2015).....	11, 13
<i>Gemalto S.A. v. HTC Corp.</i> 754 F.3d 1364 (Fed. Cir. 2014).....	5
<i>Groove Digital, Inc. v. United Bank</i> 825 F. App’x 852 (Fed. Cir. 2020).....	6
<i>IQASR LLC v. Wendt Corp.</i> 825 F. App’x 900 (Fed. Cir. 2020).....	21
<i>Kinetic Concepts, Inc. v. Blue Sky Med. Grp., Inc.</i> 554 F.3d 1010 (Fed. Cir. 2009).....	5
<i>McRO, Inc. v. Bandai Namco Games Am. Inc.</i> 959 F.3d 1091 (Fed. Cir. 2020).....	9

<i>MeadWestVaco Corp. v. Rexam Beauty & Closures, Inc.</i> 731 F.3d 1258 (Fed. Cir. 2013).....	21
<i>Medtronic v. Brainlab</i> 222 F. App'x 952 (Fed. Cir. 2007).....	10
<i>Nautilus, Inc. v. Biosig Instruments, Inc.</i> 572 U.S. 898 (2014).....	20
<i>On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer</i> 386 F.3d 1133 (Fed. Cir. 2004).....	26
<i>Persawvere, Inc. v. Milwaukee Electric Tool Corp.</i> No. 21-cv-400 (D. Del., Feb. 21, 2023) (Ex. 32).....	18
<i>Poly-Am., L.P. v. API Indus., Inc.</i> 839 F.3d 1131 (Fed. Cir. 2016).....	6
<i>Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.</i> 884 F.3d (Fed. Cir. 2016)	26
<i>Profectus Tech. LLC v. Huawei Techs. Co.</i> 823 F.3d 1375 (Fed. Cir. 2016).....	6
<i>Saso Golf, Inc. v. Nike, Inc.</i> 843 F. App'x 291 (Fed. Cir. 2021).....	20
<i>SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.</i> 242 F.3d 1337 (Fed. Cir. 2001).....	5
<i>Secure Web Conf. Corp. v. Microsoft Corp.</i> 640 F. App'x. 910 (Fed. Cir. 2016).....	5
<i>Tech. Patents LLC v. T-Mobile (UK) Ltd.</i> 700 F.3d 482 (Fed. Cir. 2012).....	5
<i>TMI Prods. v. Rosen Entertainment Sys., L.P.</i> 610 F. App'x 968 (Fed. Cir. 2015).....	25
<i>Trusted Knight Corp. v. IBM</i> 681 F. App'x. 898 (Fed. Cir. 2017).....	21
<i>Wang Labs., Inc. v. Am. Online, Inc.</i> 197 F.3d 1377 (Fed. Cir. 1999).....	10
 <u>Statutes</u>	
35 U.S.C. § 112.....	10, 20

TABLE OF EXHIBITS

Exhibit #	Description
1	U.S. Patent No. 10,347,628 (“the ’628 patent”)
2	File History of U.S. Patent No. 10,347,628 (U.S. Application No. 16/006,915) (<i>’628 patent FH</i>)
3	U.S. Patent No. 11,389,614 (“the ’614 patent”)
4	File History of U.S. Patent No. 11,389,614 (U.S. Application No. 15/931,716) (<i>’614 patent FH</i>)
5A	U.S. Patent No. 7,135,059 to Deane, Taylor, Bare, Sargent, and Scherer (<i>Deane ’059</i>)
5B	U.S. Patent Application Publication No. 2005/0072306 to Deane, Taylor, Bare, Sargent, and Scherer (<i>Deane</i>)
6	Petition For Inter Partes Review Of U.S. Patent No. 11,389,614; IPR2023-00326 (<i>614 IPR Petition</i>)
7	Petition For Inter Partes Review Of U.S. Patent No. 10,347,628; IPR2023-00527 (<i>628 IPR Petition</i>)
8	Patent Owner’s Preliminary Response; IPR2023-00326 (<i>614 IPR POPR</i>)
9	File History of U.S. Patent No. 7,954,490 (U.S. Application No. 11/054,341) (<i>’490 patent FH</i>)
10	File History of U.S. Application No. 13/096,362 (<i>’362 application FH</i>)
11	File History of U.S. Application No. 13/795,977 (<i>’977 application FH</i>)
12	File History of U.S. Patent No. 10,702,669 (<i>’669 patent FH</i>)
13	GCE Gas Control Equipment Inc.’s Responsive Claim Chart And Claim Construction Statement
14	3B Medical Manufacturing, LLC’s Supplement to Claim Construction Statement and Claim Charts With Responsive Constructions and Evidence
15	The American Heritage Dictionary of the English Language, Fourth Edition, Houghton Mifflin Company, 2000, selected pages (American Heritage)
16	New Oxford American Dictionary, Oxford University Press, 2001, selected pages (New Oxford)
17	Bloomsbury English Dictionary, Second Edition, Bloomsbury Publishing, 2004, selected pages (Bloomsbury)
18	Webster’s Third New International Dictionary, Merriam-Webster Inc., 2002, selected pages (Webster)
19	U.S. Patent No. 7,438,745 to Deane, Taylor and Li (<i>Deane ’745</i>)

Exhibit #	Description
20	U.S. Patent No. 6,651,658 to Hill, Radtke, Schneider and Bixby (<i>Hill '658</i>)
21	U.S. Patent No. 5,827,358 to Kulish and Swank (<i>Kulish</i>)
22	U.S. Patent Application Publication No. 2002/0033095 to Warren (<i>Warren '095</i>)
23	U.S. Patent Application Publication No. 2005/0072426 to Deane, Taylor, Bare, March, Merchant and Smith (<i>Deane '426</i>)
24	U.S. Patent No. 4,584,001 to Dechene (<i>Dechene</i>)
25	3B Medical Manufacturing, LLC's Initial Disclosure Of Infringement Contentions, Dated January 17, 2023
26	U.S. Patent Application Publication No. 2003/0167924 to McCombs, Casey, Chimiak and Klimaszewski (<i>McCombs '924</i>)
27	U.S. Patent Application Publication No. 2006/0117957 to McCombs, Bosinski, Casey and Valvo (<i>McCombs '957</i>)
28	Chain of Emails Between Counsel for GCE and 3B
29	Mar. 22, 2011 Claim Construction Order in <i>Dogleg Right Partners, LP. v. Taylor Made Golf Co.</i> , No. 07-CV-533 (E.D. Tex.)
30	U.S. Patent No. 7,189,169 to Billings
31	May 14, 2020 Claim Construction Order in <i>Altair Instruments, Inc. v. Telebrands Corp.</i> , No. 19-cv-8967 (C.D. Cal.)
32	Feb. 21, 2023 Claim Construction Order in <i>Persawvere, Inc. v. Milwaukee Electric Tool Corp.</i> , No. 21-cv-400 (D. Del.)
33	Sept. 29, 2020 Claim Construction Order in <i>Austin Hardware & Supply Inc., v. Allegis Corp.</i> , No. 19-cv-785 (E.D. Wis.)
34	Declaration of Kent S. Knaebel, Ph.D. from IPR2023-00527

I. INTRODUCTION

Nothing in the '628 and '614 Patents is ground-breaking over known Portable Oxygen Concentrator ("POC") designs as of the patents' priority date in 2005. The patents' common specification describes a narrow and specific belt-mounted POC configuration (as shown in its Figures) as the purported improvement over the prior art. This configuration is what the '628 and '614 Patents' specification explicitly and repeatedly describes as its "invention"—not just an exemplary or preferred embodiment, *but its "invention."* According to applicable Federal Circuit precedent, claims must be construed to include what an inventor specifies as the invention. GCE's constructions take the inventors at their word in this regard and are therefore correct. 3B's litigation-inspired constructions are incorrect as they seek to improperly broaden the scope of the '628 and '614 Patents' claims to cover GCE's products.

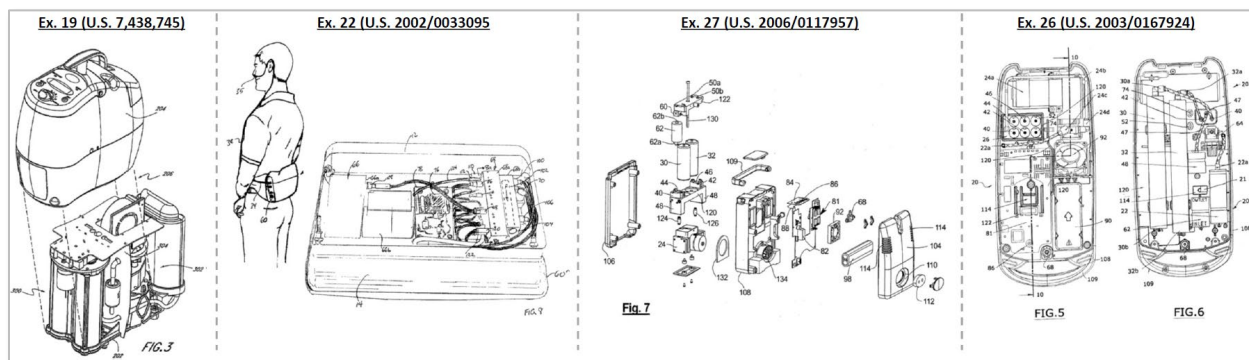
II. SEPARATION CARTRIDGE TERMS

The '628 and '614 Patents consistently and repeatedly describe their (purported) "invention" as a POC using a single separation cartridge with multiple adsorbent beds that interfaces with a belt-mounted separation cartridge module. This comports with and supports GCE's constructions. To counter Federal Circuit precedent that fully supports GCE's construction, 3B argues, without evidence, that the POC and cartridge described in the patents as their "invention" is really just an "example" and that the claims should not be so limited. 3B is wrong on the facts and the law.

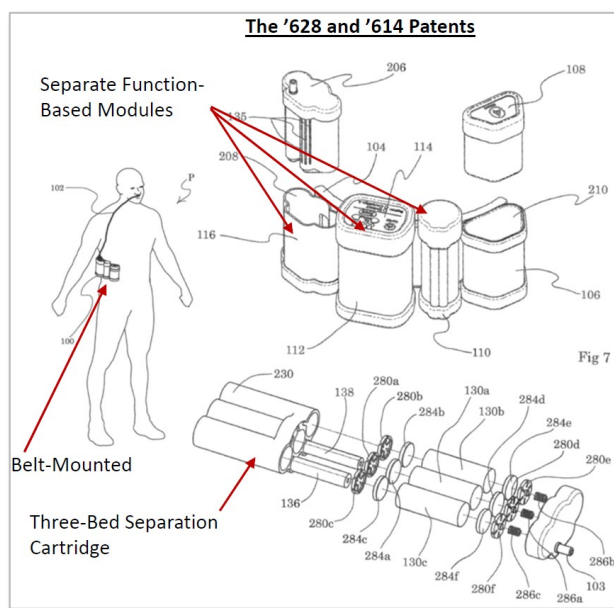
A. 3B's Brief Mischaracterizes the State of the POC Art in 2005 and Scope of the '628 and '614 Patents' (Purported) Invention

3B's Brief starts off by mischaracterizing both the state of the POC art in 2005 and the scope of the (purported) invention described in the '628 and '614 Patents. First, it is not true that "high pressure gas cylinders, liquid oxygen in vacuum-insulated containers, and in-home oxygen

concentrators” (3B’s *Opening Brief* at 2) were the only oxygen therapy options in 2005, or that the ’628 and ’614 Patents represent some kind of fundamental breakthrough replacing those options. **Many** other POC designs were known by 2005, such as those shown below. *See, e.g.,* GCE’s *Opening Brief* at 6-7; Ex. 34 at 1-31 (extensively detailing the state of the art in 2005).



Indeed, the individual components of POCs (*e.g.*, adsorbent beds, pumps, batteries *etc.*) and their general operation (*e.g.*, VSA) described in the ’628 and ’614 Patents were well-known by 2005. What the patents describe as their purported advance is a particular **configuration** of those physical components; in this case on a belt as separate function-specific modules, including a separation cartridge module holding a self-contained removable separation cartridge with multiple adsorbent beds, as shown in the annotated combination of FIGS. 1, 7, and 16 to the right.¹



¹ See GCE’s *Opening Brief* at 6-10. The Figures also show other features as part of the (purportedly) inventive configuration, like removable power pack 108 in power module 106, that are not relevant to the disputed terms.

3B downplays the specificity of what is described in its patents and mischaracterizes the disclosures of the '628 and '614 Patents by calling this configuration a mere “example” of the (purported) invention. *E.g.*, 3B’s *Opening Brief* at 3, 4, 10, 11, 15. But it is not just an example—***the patents confirm over and over that the above-portrayed configuration is the “invention.”*** Nothing in the '628 and '614 Patents describes the portrayed wearable POC or its self-contained removable separation cartridge with multiple adsorbent beds as just an “example.”

When the word “example” is used in the '628 and '614 Patents, it is only to describe examples of particular settings, conditions, indications, or adsorbent properties; not the configuration of the POC or its components. *See, e.g.*, Ex. 1, 17:3-4, 17:43-62, 20:42-44, 20:58-61, 22:48-51, 23:17-19, 23:50-52, 24:22-25, 25:58-61, 26:14-16. The '628 and '614 Patents never even imply that there may be other configurations by calling the wearable POC or specific separation cartridge design part of a “preferred” embodiment or just “one embodiment.”² There is no evidence that the inventors considered the specific POC configuration shown in the '628 and '614 Patents’ Figures to be exemplary in any way. Thus, the cases cited by 3B that caution against importing features of exemplary embodiments into the claims are not controlling here.

Rather than describing its particular POC configuration as exemplary, the '628 and '614 Patents explicitly confirm that it ***is the (purported) invention*** in at least the following passages:

- In the “Brief Description of the Drawings” section, the specification states that “FIG. 1 is a front view of a patient carrying the oxygen concentrator ***of the present***

² “Preferred embodiment” is only found in the specification when describing a pump type, pressure, valve type (Ex. 1, 9:35-36, 16:22-24, 18:16-20) and in the final boilerplate paragraph (Ex. 1, 26:9-14). Similarly, “one embodiment” is used only in conjunction with sensors, vacuum level, purge timing, gas type, padding construction, socket construction, power pack type, reservoir capacity, flow settings, indicator lights, adsorbent bed volume, docking station configuration. Ex. 1, 5:54-56, 9:31-32, 9:62-65, 10:11-14, 13:19-21, 13:34-37, 14:40-42, 16:9-21, 16:65-66, 17:19-20, 17:38-40, 18:40-43, 19:46-52, 20:14-15, 20:28-30, 20:48-50.

- invention*” and the remaining figures are described as views of “the oxygen concentrator.” Ex. 1, 2:62-63 (emphasis added). The patents do not say any of the drawings are of an example or preferred embodiment, only the “present invention.”³
- After the drawing description section, the next section is titled “Detailed Description.” Ex. 1, 3:36. The patents do not use “Description of Exemplary Embodiments” or similar language.⁴
 - In the first paragraph of the “Detailed Description,” the specification states that “[t]he *present invention* is further explained with reference to the drawn figures ...” Ex. 1, 3:38-44 (emphasis added). The patents never describe the wearable POC or any of its main components as an “example” or “preferred” embodiment.⁵
 - The specification states that “[t]he device *of the present invention* with the described components weighs less than three pounds (1.36 kg).” Ex. 1, 24:1-3. This again confirms the configuration described in the Figures and specification is the invention.
 - In the “Background” section, the specification indicates that “[i]n particular, *the invention* relates to wearable oxygen concentration systems utilizing vacuum swing adsorption for creating an oxygen stream for ambulatory respiratory patients.” Ex. 1, 1:18-21. This again confirms the described wearable POC is the invention.
 - While the specification includes typical boilerplate at the end, the only exemplary modification is “[f]or example, larger flow rates may be achieved by scaling the concentrator components to achieve desired flow rates at the disclosed efficiencies.” Ex. 1, 26:09-16. This confirms that, while the patents consider possible minor material-type and functional variations, they do not contemplate any changes to what they describe as the substantive invention—the particular POC configuration.

³ Compare *id.* with *e.g.*, Ex. 19, 8:34-39; Ex. 20, 4:33-40; Ex. 21, 3:54-57; Ex. 22, ¶[0040]; Ex. 24, 2:5-8; Ex. 26 ¶[0006]; and Ex. 27 ¶[0009] (the latter describing figures as showing an “example” or “preferred” embodiment).

⁴ Compare *id.* with *e.g.*, Ex. 19, 9:32-33; Ex. 20, 4:59-60; Ex. 22, ¶[0059]; Ex. 24, 2:20-21; Ex. 26 ¶[0016]; Ex. 27 ¶[0009].

⁵ Compare *id.* with *e.g.*, Ex. 19, 9:35-37; Ex. 20, 4:63-66; Ex. 26, ¶[0017]; Ex. 27, ¶[0019].

Because the '628 and '614 Patents clearly and repeatedly describe the wearable POC and self-contained removable separation cartridge with multiple adsorbent beds shown in the Figures as the “invention” itself, Federal Circuit precedent dictates that the claims be interpreted to include these features. *Edwards Lifescience LLC v. Cook Inc.*, 582 F.3d 1322, 1330 (Fed. Cir. 2009) (interpreting “graft” to be “intraluminal graft” because the specification frequently described an “intraluminal graft” as “the present invention” or “this invention”); *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343 (Fed. Cir. 2001) (limiting the scope of “catheter” in the claims to catheters with “coaxial lumens” because the patent described the coaxial configuration as the “present invention,” which it describes as “strong evidence” that the claim should be so limited); *Secure Web Conf. Corp. v. Microsoft Corp.*, 640 F. App'x. 910, 914 (Fed. Cir. 2016); (construing “security device” to be a “stand-alone” device because the patent repeatedly described the device in that context and the drawing descriptions state that the figures depict “a communication system according to the present invention” and “a telecommunications security device according to the instant invention”); *Gemalto S.A. v. HTC Corp.*, 754 F.3d 1364, 1369 (Fed. Cir. 2014) (finding a patentee’s proposed construction is improper because, in part, the proposed construction is broader than the described intent of the patent); and *Tech. Patents LLC v. T-Mobile (UK) Ltd.*, 700 F.3d 482, 493-94 (Fed. Cir. 2012) (affirming Maryland Court’s ruling because, in part, the Court correctly considered the “heart of the invention’s alleged improvement over the prior art.”).

Further, every single portrayal of the (purported) invention of the '628 and '614 Patents is of a wearable POC with a self-contained removable separation cartridge with multiple adsorbent beds. *See, e.g.*, Ex. 1, FIGS. 1-10, 15-17. In similar situations, the Federal Circuit has confirmed that the claims should be construed to require those features. *See, e.g.*, *Kinetic*

Concepts, Inc. v. Blue Sky Med. Grp., Inc., 554 F.3d 1010, 1019 (Fed. Cir. 2009) (construing the term “wound” to mean “skin wound,” rather than allowing it to encompass “pus pockets” because, in part, all examples in the patent-at-issue involved skin wounds); *Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1381 (Fed. Cir. 2016) (affirming the district court’s construction of the term “mountable” to require a “feature for mounting” because, in part, “every embodiment” “includes a feature for mounting the device to a wall or on a tabletop” and patentee “fails to pinpoint in the intrinsic record where the patent contemplates a situation where no mounting features exist”); *Poly-Am., L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1137 (Fed. Cir. 2016) (affirming the district court’s construction of the term “short seal” to require inward extension because, in part, “[e]very embodiment described in the specification has inwardly extended short seals”); *Groove Digital, Inc. v. United Bank*, 825 F. App’x 852, 855-56 (Fed. Cir. 2020) (affirming the district court’s construction of the term “applet” to require “geotargeting” because, in part, the patent-at-issue “repeatedly, consistently, and exclusively depicts applets as being geotargeted.”).

In view of the above, it is clear that the claims of the ’628 and ’614 Patents must be understood and construed in the context of what those patents say is the invention—the wearable POC depicted in FIGS. 1-5 and 7-18 of the patents that includes a self-contained removable separation cartridge with multiple adsorbent beds.

B. “Separation Cartridge” (’628 & ’614 Patents)

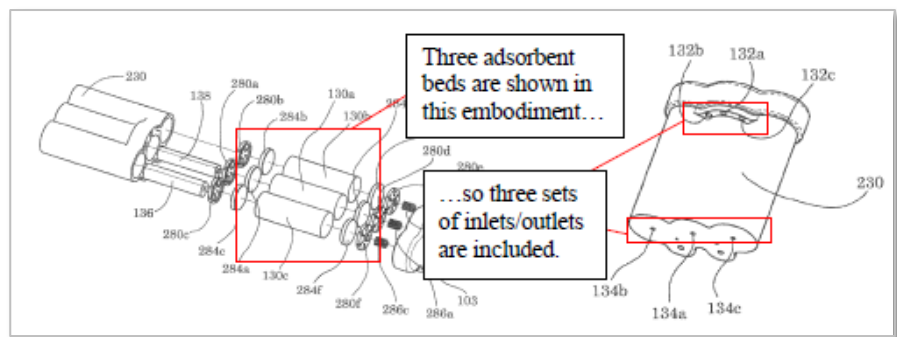
GCE’s Proposed Construction	3B’s Proposed Construction
“a housing/container that holds multiple adsorbent columns for gas separation and provides separate inlet and outlet ports for each adsorbent column”	Plain and ordinary meaning, which is “a cartridge configured to separate gas”

The main dispute here is whether this term should be construed, consistent with the intrinsic record, to include multiple adsorbent columns (as GCE proposes) or as few as a single adsorbent column (as 3B proposes). GCE's construction conforms to what the patents describe as their invention, and is therefore correct.⁶

3B does not dispute that "separation cartridge" lacks an art-accepted meaning⁷ and that the Court must look to the intrinsic record to determine its scope. Nor does 3B dispute that the *only* "separation cartridge" described in the '628 and '614 Patents is a separation cartridge with three adsorbent beds, each having an individual inlet and outlet, as depicted in, e.g., FIGS. 1-5, 7-10, 15-17 (see in particular, FIGS. 15-16 and 5). Indeed, 3B explains the scope of "separation cartridge" using an annotated excerpt of FIG. 16 (reproduced here) that it labeled to show its multiple adsorbent beds,

inlets, and outlets. 3B's *Opening Brief* at 10.

As discussed above, 3B instead argues



that the separation cartridge described by the '628 and '614 Patents is just "[a]n *example* separation cartridge 206" (3B's *Opening Brief* at 10, emphasis added) and that "it is improper to limit the claims to a specification embodiment" (3B's *Opening Brief* at 13-14). 3B's argument is factually incorrect for at least the reasons discussed in the preceding section. *Nowhere* do the

⁶ 3B's construction also defines "cartridge" using the word "cartridge." This is disfavored and not informative. See *Abbott Labs. v. Sandoz, Inc.*, 544 F.3d 1341, 1360 (Fed. Cir. 2008) ("Claim construction is for the purpose of explaining and defining terms in the claims, and usually requires use of words other than the words that are being defined.").

⁷ Dr. Deane has confirmed that "separation cartridge" does not have a specific meaning in the art. Deane Decl., ¶42. 3B has not submitted any expert testimony to the contrary.

'628 and '614 Patents describe the wearable POC of the patents or the separation cartridge of FIGS. 15-16 as just an “example” of the invention. In fact, the opposite is true. The '628 and '614 Patents clearly and repeatedly describe the three-bed separation cartridge shown in FIGS. 15-16 *as the invention itself*. No separation cartridge with a single adsorbent bed is described or even remotely contemplated by the '628 and '614 Patents.

Indeed, the *only purported evidence* 3B offers to support its position that the FIG. 15-16 separation cartridge is just an example is a single sentence from the specification that *actually supports GCE*. Specifically, 3B cites the following specification passage:

This constitutes the general principles of vacuum swing adsorption (VSA) for gas separation. All phases can be accomplished with a single column, or with a plurality of columns. If a plurality of columns are used, it is preferable to have a multiple of three (illustrated as 130 a-130 c in FIG. 5) that are sequenced out of phase for the different cycle phases in order to maintain constant product flow.

(Ex. 1 17:13-19), and characterizes it as “mak[ing] it clear that while multiple columns are disclosed in some embodiments, the separation cartridge can have just one single column.” 3B’s *Opening Brief* at 11. But this characterization is wrong. First, as explained above, multiple columns are not just disclosed in “some embodiments,” they are explicitly described as the “invention.” Second, this paragraph is simply stating that the VSA process, discussed generally in the immediately preceding paragraphs, can be implemented using one or multiple columns (beds). That fact is not contested here. Importantly, however, this passage *does not say* that the separation cartridge of the (purported) inventive POC configuration may be implemented with only one adsorbent bed—it cannot.⁸ Third, and perhaps most importantly, this passage states that

⁸ Single column systems can be used with a VSA process in industrial implementations, but they are not a functional alternative for POCs. Declaration of Geoffrey Deane, Ph.D., In Support of GCE’s Responsive Claim Construction Brief (“Reb. Deane Decl.”), ¶10.

a plurality of columns is used to “maintain constant product flow.”⁹ Fatally for 3B’s position, the ’628 and ’614 Patents state that the allegedly inventive POC must provide such continuous flow:

The industry has developed a set of recommendations for systems targeted to provide portable oxygen for ambulatory patients. The Fifth Oxygen Consensus Conference set forth the following standards for long-term oxygen therapy ambulatory equipment: 1) equipment must weigh less than 10 lbs., 2) ***equipment must provide the equivalent of 2 liter/min of continuous flow O₂***, and 3) the flow rate must be maintained for four hours or more. . . . ***The present invention, whereby oxygen rich gas is provided to a patient from a wearable oxygen concentrator, meets and exceeds these standards.***

Ex. 1, 2:33-50 (emphasis added).¹⁰ In other words, the ’628 and ’614 Patents explicitly state that their invention must provide continuous flow and that the configuration that provides continuous flow is the depicted three-bed cartridge.¹¹ Thus, rather than somehow supporting 3B’s position, these passages confirm that GCE’s construction is correct.

Moreover, because—as the ’628 and ’614 Patents themselves recognize in these passages—multiple beds were required for POCs in 2005 (and now), if the patents were really somehow directed to a single-bed cartridge as 3B asserts, they would have had to explain how such an advance was possible by detailing its structure and function to enable such an invention.

See McRO, Inc. v. Bandai Namco Games Am. Inc., 959 F.3d 1091, 1099-1100 (Fed. Cir. 2020)

⁹ Constant or continuous flow is, as one would expect by the name, an uninterrupted oxygen flow to the patient. Reb. Deane Decl., ¶11. As recognized by this passage, constant or continuous flow cannot be provided by a single column arrangement because the single column must be periodically purged of nitrogen, and the purge process would necessarily interrupt the adsorbing process. Deane Decl., ¶13.

¹⁰ As discussed in GCE’s Opening Brief, the use of multiple beds of adsorbent material is what allows the required continuous operation. Deane Decl., ¶54. A single-bed cartridge would not have provided the functionality required for continuous operation in the ’628 and ’614 Patents’ POCs. Deane Decl., ¶54.

¹¹ The patents further confirm that “[i]n particular, ***the invention*** relates to wearable oxygen concentration systems utilizing vacuum swing adsorption for ***creating an oxygen stream*** for ambulatory respiratory patients.” Ex. 1, 1:18-21 (emphasis added).

(stating that, as part of the “essential ‘*quid pro quo* of the patent bargain,” a claim is invalid under 35 U.S.C. §112 (1st ¶) if the underlying specification does not “contain the written description of the [claimed] invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms to enable any person skilled in the art to make and use the same.”). The ’628 and ’614 Patents provide no such explanation that would have enabled a person of skill to make and use a single bed cartridge. The only appropriate conclusion to draw from this is that a single bed cartridge was not part of the ’628 and ’614 Patents’ purported invention. Reb. Deane Decl., ¶15. Thus, construing the claims to cover an unmentioned and un contemplated single bed cartridge would result in their invalidity under 35 U.S.C. §112, 1st ¶—a result that the Federal Circuit has found counsels against such a construction. *See Wang Labs., Inc. v. Am. Online, Inc.*, 197 F.3d 1377, 1383 (Fed. Cir. 1999) (“[C]laims are not properly construed to have a meaning or scope that would lead to their invalidity[.]”); *see also Medtronic v. Brainlab*, 222 F. App’x 952, 957-58 (Fed. Cir. 2007) (stating that a claim should not be construed to encompass a vague one-sentence reference to an alternative configuration because, in part, “[t]here is no enabling description of how to make and use [the alternative] and claims are best construed to preserve their validity.”).

3B’s argument is also legally incorrect in view of the precedent discussed in the preceding section. Because the ’628 and ’614 Patents confirm a three-bed separation cartridge is the (alleged) invention, 3B’s cases are inapposite. This is not a situation where GCE is seeking to import exemplary design features from a specification, like a particular material, shape, size, *etc.*, into the claims, which is the issue addressed by 3B’s cited cases. Rather, the ’628 and ’614 Patents clearly specify that the three-bed separation cartridge *is the (purported) invention*.

“Separation cartridge” must be construed to include what the inventors described as the (purported) invention.

3B also argues that construing “separation cartridge” to include “multiple adsorbent columns for gas separation” and “separate inlet and outlet ports for each adsorbent column” is somehow inconsistent with the remainder of the claims, which recite, for example, “an inlet,” an outlet,” and “a bed of adsorbent material.” 3B’s *Opening Brief* at 11-12. But there is nothing inconsistent with requiring the separation cartridge to include multiple adsorbent material, inlets, and outlets, and then identifying one set of beds, inlets, and outlets to define a particular feature. For example, in the context of claim 11 of the ’628 patent, the specifically recited adsorbent column, inlet, and outlet simply provides an antecedent basis for the claims’ later recitations of the arrangement of these features *vis-à-vis* an axis (*i.e.*, in order to recite the axis in relation to a particular adsorbent column in later claim elements, the claim must first identify the particular adsorbent column). Deane Decl., ¶52. This follows standard claim drafting practices.

Finally, 3B’s last argument for this term actually concedes GCE’s construction is consistent with the remainder of the claim. Specifically, 3B argues that because claim 21 recites that “the bed of adsorbent material is one of a plurality of beds of adsorbent material within the separation cartridge,” “separation cartridge” in independent claim 11 should not be construed to require the presence of multiple adsorbent beds because it would render claim 21 redundant. 3B’s *Opening Brief* at 12-13. As an initial matter, this is a “claim differentiation” argument that the Federal Circuit has confirmed cannot overcome the clear meaning of “separation cartridge” set forth in the intrinsic record. *See Fenner Invs., Ltd. v. Cellco P’ship*, 778 F.3d 1320, 1326-27 (Fed. Cir. 2015) (“Although claim differentiation is a useful analytic tool, it cannot enlarge the meaning of a claim beyond that which is supported by the patent documents[.]”). Moreover, as to

3B's previous argument, it cannot be inconsistent with the claims of the patents as a logical proposition to require the separation cartridge have multiple beds when the '628 patent's claim 21 exactly states this when read in conjunction with claim 11.

- C. “A First Bed Of Adsorbent Material Configured To Preferentially Adsorb Nitrogen; A First Inlet Oriented In A Direction, Wherein The First Inlet Is Configured To Direct A Flow Of Ambient Air To The First Bed; A First Outlet Oriented In The Direction, Wherein The First Outlet Is Configured To Expel Product Gas Flowing Downstream Of The First Bed; A Second Bed Of Adsorbent Material Configured To Preferentially Adsorb Nitrogen; A Second Inlet Oriented In The Direction, Wherein The Second Inlet Is Configured To Direct A Flow Of Ambient Air To The Second Bed; A Second Outlet Oriented In The Direction, Wherein The Second Outlet Is Configured To Expel Product Gas Flowing Downstream Of The Second Bed;” ('614 Patent)**

GCE's Proposed Construction	3B's Proposed Construction
“a separation cartridge containing: (i) a first bed of adsorbent material configured to preferentially adsorb nitrogen; (ii) a first inlet oriented in a direction, wherein the first inlet is configured to direct a flow of ambient air to the first bed; (iii) a first outlet oriented in the direction, wherein the first outlet is configured to expel product gas flowing downstream of the first bed; (iv) a second bed of adsorbent material configured to preferentially adsorb nitrogen; (v) a second inlet oriented in the direction, wherein the second inlet is configured to direct a flow of ambient air to the second bed; and (vi) a second outlet oriented in the direction, wherein the second outlet is configured to expel product gas flowing downstream of the second bed”; or otherwise indefinite	No construction necessary. “A separation cartridge containing:” should not be added into claim 13, as GCE proposes; GCE does not attempt to construe any of the actual quoted claim language in the claim term GCE identified.

The main question regarding this term is whether it is indefinite, or can be saved by construing the recited “inlet[s],” “outlet[s],” and “bed[s] of adsorbent material” to be a part of the “separation cartridge.” Without specifying that these elements are part of the separation cartridge, the scope of the claim cannot be reasonably determined because, for example, the '614

Patent describes two kinds of inlets and outlets: a system inlet (135) and outlet (103) and separation cartridge inlets (132a-c) and outlets (134a-c), and it is unclear what “inlets” and “outlets” are being claimed. *Compare* Ex. 1, FIG 5 with *id.*, FIG. 15; Deane Decl., ¶69.

Moreover, the claim provides no underlying structural backbone for its elements. That is, are the “inlet[s],” “outlet[s],” and “bed[s] of adsorbent material” just randomly arranged in a POC? Are they parts in a bin for assembly? Are they part of an industrial scale system at different parts of a plant? Or are they arranged in a single cartridge according to GCE’s construction—which is also what the patents confirm is their invention? Unless the Court adopts GCE’s construction to provide structural definition around the claim language, the claim is not reasonably definite.

3B argues that it is improper to construe this term as being part of a “separation cartridge” because “separation cartridge” is not recited in the claim. 3B is wrong for several reasons. *First*, the ***entire point*** of claim construction is to define terms in the context of the patent’s disclosure and that often requires using words that are not necessarily in the claim. *Second*, the fact that “separation cartridge” is missing from the claim is the ***reason*** the claim is indefinite. *Third*, construing this elements of this term as being part of a “separation cartridge” is the only way the scope of this term can be resolved to avoid indefiniteness. The ***only structure*** in the ’614 Patent that provides both multiple beds of adsorbent material and multiple inlets and outlets is the separation cartridge, for at least the reasons discussed above. Deane Decl., ¶70.

3B also argues that GCE’s proposed construction would render claim 16, which depends from claim 13, meaningless under the doctrine of claim differentiation. 3B’s *Opening Brief* at 29. But, again, claim differentiation does not control over what the patents say is the invention. *See Fenner*, 778 F.3d at 1326-27.

III. AXIS AND LINE TERMS

The terms including axes and lines were inserted into the claims many years after the 2005 application was filed. Nowhere in the '628 and '614 Patents' specification, however, is there *any* description of any (alleged) invention in the context of axes and lines. Rather, the bases for the recited lines and axes can only possibly be found in the illustrated geometry of the FIGS. 15-16 separation cartridge of the '628 and '614 Patents (which is specified as the purportedly inventive configuration for the reasons discussed above). The claim language including the disputed terms reflects an effort to reduce to words the FIGS. 15-16 geometry as so-called “picture claims.” Regarding the “axis” terms, their meaning is reasonably clear (especially in view of the common meaning of “axis”), but 3B seeks to improperly expand the scope beyond their common meaning and what was described by the patents. As for the “line” terms, they are poorly drafted such that their outer bounds are not reasonably clear to a person of skill, rendering them indefinite.

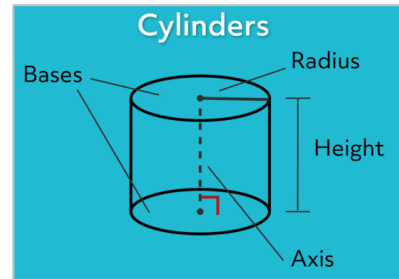
A. “Axis” / “Disposed Along [An]/[The] Axis” ('628 Patent)

Term	GCE's Proposed Construction	3B's Proposed Construction
axis	“the centerline of the bed of adsorbent material”	Plain and ordinary meaning, which is “a reference line”
disposed along [an]/[the] axis	“arranged on the axis such that the axis passes through”	Plain and ordinary meaning, which is “arranged on the axis”

GCE's constructions are firmly grounded in: (i) the common meaning of “axis” in the context of the geometry of physical objects like those being claimed here (*e.g.*, a straight line with respect to which a body or figure is symmetrical or about which a body rotates); and (ii) the intrinsic record (*e.g.*, the axes illustrated in FIG. 16 of the '628 and '614 Patents pass through the adsorbent beds), and are therefore proper. 3B's constructions, on the other hand, rest entirely on

an inapplicable and abstract “mathematical”¹² definition of “axis” (e.g., the x and y lines of a mathematical graph) and expand the scope of the terms to cover almost any “line” that is anywhere near the adsorbent beds—concepts completely unsupported by the intrinsic record and advanced solely to read the claims on GCE’s products.

The parties’ disagreement flows from one overriding question—what is the common understanding of “axis” applicable here? 3B does not appear to dispute (and cannot) that “axis,” when used in conjunction with a physical object (e.g., a cylinder), means a straight line with respect to which a body or figure is symmetrical or about



which a body rotates, as shown in the figure reproduced to the right.¹³ Reb. Deane Decl., ¶22.

This definition forms the basis of GCE’s proposed constructions and matches what is shown in FIG. 16 of the ’628 and ’614 Patents.

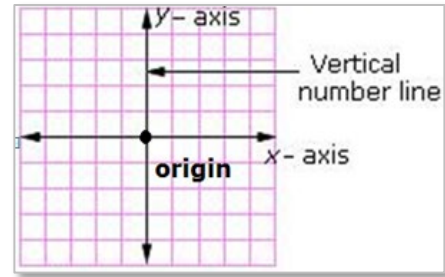
3B’s attorney argument (with no underlying expert support) is that the meaning of “axis” is not that of an object’s axis, but actually that of the axes of *mathematical graphs*, such as those

¹² See 3B’s *Opening Brief* at 20 (“As understood from mathematics, the term ‘axis’ is ‘a reference line.’”).

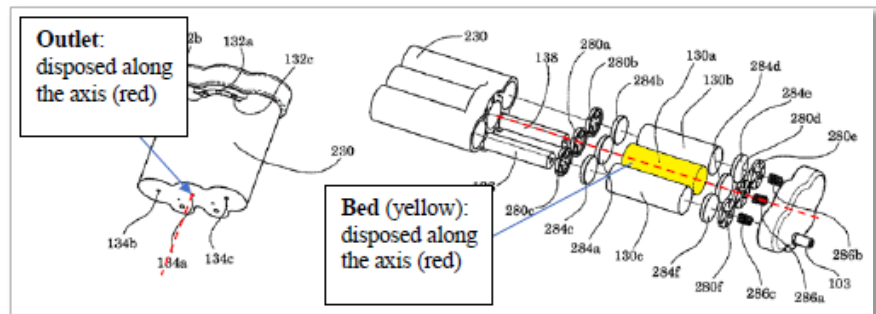
¹³ See, e.g., Ex. 18A (“*Webster’s*”) at p. 153 (defining “axis” as, e.g., “[1]b: a straight line with respect to which a body, figure, or system of points is either radially or bilaterally symmetrical”); Ex. 17A (“*Bloomsbury*”) at pp. 120-121 (defining “axis” as, e.g., “2. MATHS LINE AROUND WHICH SHAPE IS SYMMETRICAL a straight line around which a geometric figure or three-dimensional object is symmetrical”); Ex. 16A (“*New Oxford*”) at pp. 112-113 (defining “axis” as, e.g., “an imaginary straight line passing through the center of a symmetrical solid” or “an imaginary line that divides something into equal or roughly equal halves, esp. in the direction of its greatest length”); Ex. 15A (*American Heritage*) at p. 126 (defining “axis” as, e.g., “2 *Mathematics* a. An unlimited line, half-line, or line segment serving to orient a space or geometric object, especially in a line about which the object is symmetric. . . . 3. A center line to which parts of a structure or body may be referred”). See also Deane Decl., ¶76.

shown in the illustration here.¹⁴ 3B's *Opening Brief* at 22.

This is plainly incorrect. Reb. Deane Decl., ¶23. No portion of the '628 and '614 Patents provides any description of its configuration using any graphs, grids, or coordinate systems based on an x- or y-axis, or any other mathematical construct.



Rather, the axes recited in these disputed terms relate to axes of physical objects (*e.g.*, adsorbent beds) as GCE proposes. 3B's annotated excerpt of FIG. 16 (reproduced here) confirms this. Specifically, 3B uses a red dashed line to identify the axis of the bed of adsorbent material 130b (shaded yellow). This red



dashed line is the centerline of the bed of adsorbent material.¹⁵ And the axes illustrated in FIG. 16 are not just example axes as 3B argues (3B's *Opening Brief* at 22-23). No other adsorbent bed axes are shown or otherwise described in the '628 and '614 Patents. This configuration is the (purported) invention for at least the reasons above.

Despite the clear evidence supporting GCE's construction, 3B argues that "axis" should not be construed as GCE proposes because the claims recite "axis" and not "centerline," "central

¹⁴ While this is one meaning of "axis" as shown in the dictionaries relied on by GCE (*see* Ex. 15A, p. 126, definition 2b of "axis"; Ex. 16A, pp. 112-113, definition 2 of "axis"; Ex. 17A, p. 120, definition 3 of Axis"; Ex. 18A, p. 153, definition 1d of "axis), it is in each case a minor meaning specifically described as being relevant to coordinate systems, not the geometry of physical object.

¹⁵ The bed of adsorbent material is also arranged on the red dashed line such that the red dashed line passes through it. This also matches GCE's construction of "disposed along [an]/[the] axis."

axis,” or “axis of symmetry.” *Opening Brief* at 21-22. But these alternative words are synonyms of “axis” when used to describe object geometry, as can be seen in the definitions of “axis” in Exhibits 15A-18A. Each of these terms mean the same thing in the context of the adsorbent beds described in the ’628 and ’614 Patents. Reb. Deane Decl., ¶24.

3B also confusingly argues that “axis” should not be understood to be a centerline because a *different patent* uses “axis” to describe lines that are not object centerlines. 3B’s *Opening Brief* at 22 (citing axes 1942, 1944, 1948a, and 1948b in col. 28:26-29 and Figure 19E in U.S. Patent No. 7,438,745 (Ex. 30)). But 3B does not explain *why* the meaning of “axis” in a different patent—which is extrinsic evidence—would have any bearing on “axis” in the disputed terms. The relevant inquiry is what is the meaning of “axis” in the context of the ’628 and ’614 Patents’ intrinsic record.¹⁶ Moreover, to the extent the Court is inclined to even consider this extrinsic evidence, 3B is also wrong on the facts. Axes 1942, 1944, 1948a, and 1948b in U.S. Patent No. 7,438,745 are described as “transverse axis 1942,” “lower transverse axis 1944,” and “first and second end lower lateral axes 1948a, 1948b” and include specific definitions of their meaning. Ex. 30 at 27:38-62. Thus, they are not instructive as to what the bare term “axis” means.¹⁷

¹⁶ The ordinary meaning of a term “is not the meaning of the term in the abstract.” *Eon Corp. v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1321 (Fed. Cir. 2016). “Plain and ordinary meaning[] is the meaning one of ordinary skill in the art would ascribe to a term when read in the context of the claim, specification, and prosecution history.” *Apple Inc. v. MPH Techs. Oy*, 28 F.4th 254, 259 (Fed. Cir. 2022); *Eon Corp.*, 815 F.3d at 1321 (“the ordinary meaning of a claim term is its meaning to the ordinary artisan *after* reading the entire patent.”).

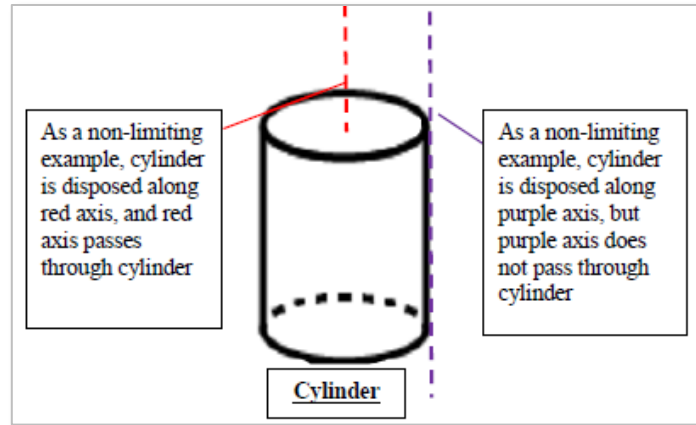
¹⁷ This identification of “axes” in U.S. Patent No. 7,438,745 also cuts against 3B’s assertion that axes are reference lines from a mathematical grid. This patent, like the ’628 and ’614 Patents, does not use “axis” in the context of x- and y- axes in a graph or coordinate system.

Finally, 3B cites *Dogleg Right Partners, LP. v. Taylor Made Golf Co.*, No. 07-cv-533, 2011 U.S. Dist. LEXIS 29474, at *10 (E.D. Tex. Mar. 22, 2011) as supporting its construction because the parties therein agreed that “axis” meant “[a] reference line from which distances or angles are measured in a coordinate system.” 3B’s *Opening Brief* at 22 (citing Ex. 29). But this is again extrinsic evidence and is a different construction for a different unrelated patent. What matters for resolving the dispute here is the meaning of “axis” in the context of *the ’628 and ’614 Patents*.¹⁸ And to the extent the Court considers *Dogleg Right* at all, it should also recognize that other courts have found “axis” to be defined along the lines of GCE’s construction. *See, e.g., Austin Hardware & Supply Inc., v. Allegis Corp.*, No. 19-cv-785 (E.D. Wis., Sep. 29, 2020) (Ex. 33) (defining “axis” as “a straight line around which a body . . . rotates” in view of various dictionary definitions); *see also Altair Instruments, Inc. v. Telebrands Corp. et al.*, No. 19-cv-8967 (C.D. Cal., May 14, 2020) (Ex. 31) (providing agreed-on definitions of “axis” similar to GCE’s here); *Persawvere, Inc. v. Milwaukee Electric Tool Corp.*, No. 21-cv-400 (D. Del., Feb. 21, 2023) (Ex. 32) (same).

Turning to “disposed along [an]/[the] axis,” 3B argues that GCE’s construction is wrong because it improperly requires that “the axis ‘passes through’ the corresponding structure.” 3B’s *Opening Brief* at 23. Instead, 3B argues that “disposed along [an]/[the] axis” must be broadly construed to include the purple line in 3B’s illustration on page 24 of its *Opening Brief* (reproduced here). 3B’s position is nonsensical for a number of reasons. *First*, the purple line is

¹⁸ Further, the claim language for the patent considered in *Dogleg Right* (U.S. Patent No. 7,189,169; Ex. 30) explicitly defined what the axes were (*e.g.*, “a first axis extending between the heel and the toe portions and a second axis extending between the face and the back portion of the club head”); it did not use “axis” alone as is the case here, and is therefore not even conceptually relevant.

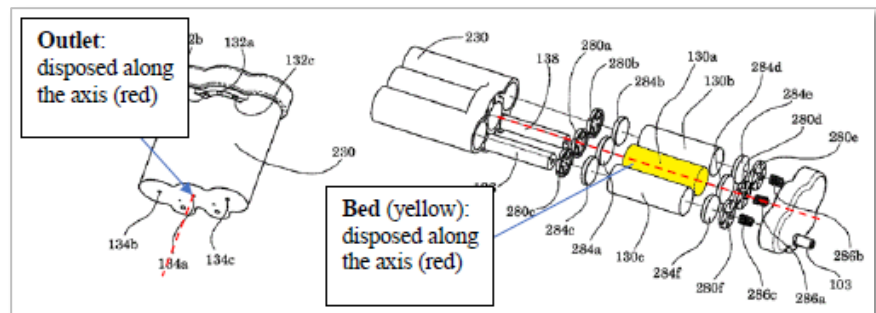
not an “axis” for at least the reasons stated above. It is a random line drawn near the illustrated cylinder. *Second*, nowhere in the ’628 and ’614 Patents is there any description—or even a suggestion—of its (alleged) invention in the context of “lines” or any



indication that an “axis” can be redefined as a random line. 3B’s interpretation is completely contrived for litigation purposes. *Third*, the purple line does not even comport with 3B’s own proposed construction of “disposed along [an]/[the] axis” as “arranged on the axis” because the illustrated cylinder is arranged *next to* the axis, not *on* it.

Indeed, as discussed above, 3B admits in its annotated version of FIG. 16 of the ’628 and ’614 Patents that the axis (red dashed line) of the bed of adsorbent material 130b (shaded yellow)

passes through the bed as its centerline. This: (i) is the only portrayal of an axis in the ’628 and ’614 Patents; (ii) matches the



ordinary meaning of “axis” when used to describe the geometry of an object; and (iii) matches GCE’s construction of “disposed along [an]/[the] axis.” Moreover, this is the configuration that the patents repeatedly state is their (purported) invention. Thus, GCE’s construction must be correct.

- B. “Fluid Flowing Along The First Line Contacts The Adsorbent Material Of The Bed” / “Fluid Flowing Along The Second Line Does Not Contact The Adsorbent Material Of The Bed” (Claims 1, 12) “Fluid Flowing Along The First Line Contacts The Adsorbent Material Of The First Bed” / “Fluid Flowing Along The Second Line Does Not Contact The Adsorbent Material Of The First Bed” / “Fluid Flowing Along The Third Line Contacts The Adsorbent Material Of The Second Bed” / “Fluid Flowing Along The Fourth Line Does Not Contact The Adsorbent Material Of The Second Bed” (Claim 13) (’614 Patent)¹⁹**

GCE’s Proposed Construction	3B’s Proposed Construction
Indefinite	Plain and ordinary meaning. As to “contact” and “does not contact,” the plain and ordinary meanings are “touch” and “does not touch,” respectively. As to “fluid [flowing/flows] along,” the plain and ordinary meaning is “fluid [moving/moves] on.”²⁰

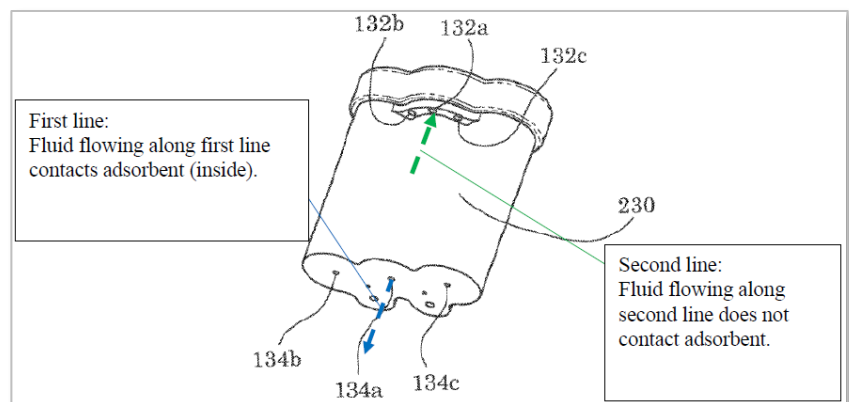
3B offers no explanation for why these terms—read as a whole— have a scope definite under 35 U.S.C. §112 (2nd ¶). The only substantive argument offered by 3B is that the terms are definite because GCE was able to compare them to prior art teachings in its IPR Petitions (and its expert witness, Dr. Knaebel, was able to do so in his accompanying declaration). 3B’s *Opening Brief* at 33-34. But that argument misses the point. Just because a claim element can be compared to a prior art feature for invalidity purposes (*e.g.*, the term reads on *one* particular configuration) does not mean that the outer bounds of the claims can be reasonably determined (*e.g.*, what *other* configurations does the term include within its scope?) with “reasonable

¹⁹ Also, “when fluid flows through the separation cartridge, fluid flows along the first line in the second direction” / “when fluid flows through the separation cartridge . . . fluid flows along the second line in the first direction” (claim 8) is indefinite for similar reasons, and does not cure the ambiguities herein as it simply recites a flow direction.

²⁰ 3B here concedes that “along” means “on” when the definiteness of its claims are at stake. This demonstrates its position regarding “disposed along” above is incorrect.

certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014); *Saso Golf, Inc. v. Nike, Inc.*, 843 F. App’x 291, 292-94, 296-97 (Fed. Cir. 2021) (finding that even where the figures of a patent show a toe and heel side of a golf club head, claims using toe and heel to set measurement points were indefinite where the size, shape, and locations of these regions are not reasonably certain); *Trusted Knight Corp. v. IBM*, 681 F. App’x. 898, 903, (Fed. Cir. 2017) (finding the disputed term indefinite because it “does not ‘appris[e] the public of what is still open to them,’ . . . and creates ‘[a] zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims.’”) If, as here, a person of skill cannot determine the reasonable metes and bounds of a claim’s scope, it is indefinite. *MeadWestVaco Corp. v. Rexam Beauty & Closures, Inc.*, 731 F.3d 1258, 1270 n.8 (Fed. Cir. 2013) (“Even if a claim term’s definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope.”); *IQASR LLC v. Wendt Corp.*, 825 F. App’x 900, 907 (Fed. Cir. 2020) (same).

Sensing the danger its claims are in and to avoid giving GCE the opportunity to respond, 3B did not address the meaning of the *entire* disputed term in its Opening Brief. 3B instead focused on the meanings of the constituent terms “contact”/“does not contact” and “fluid [flowing/flows] along.” 3B’s *Opening Brief* at 31. But the problems with the disputed terms are so apparent that even 3B’s limited briefing demonstrates the terms’ indefiniteness. Specifically, 3B sought to explain the concept of “flowing along” using an annotated version of FIG. 15 of the ’628 and ’614 Patents (reproduced



here). *Opening Brief* at 32. But the blue dashed line identified by 3B as the “first line” is *outside* separation cartridge 230. Thus, fluid flowing along this illustrated “first line” does not contact any adsorbent material, which is contrary to the requirement of each of these disputed terms that “fluid flowing along the first line contacts the adsorbent material of the [first] bed.” 3B tries to obscure this inconsistency by stating in the annotation label of the “first line” that the fluid contacts the adsorbent “(inside)” the cartridge. Thus, it appears to be 3B’s position that the disputed terms really mean that fluid only *sometimes* contacts the adsorbent while flowing along the first line. But that is not what the claim language recites and leaves a person of skill unable to determine whether there is infringement or not in a particular configuration. Thus, these terms, and the claims of which they are a part, must be found indefinite.

IV. ADDITIONAL TERMS

As discussed in GCE’s *Opening Brief*, the parties’ competing proposed constructions for “receptacle” and “selectively removable [from a receptacle]” are at least conceptually similar. GCE’s originally-proposed constructions (labeled [A] in the subsections below) were originally offered in GCE’s IPR Petitions (*see* Ex. 6, 23-26, filed in December 2022; Ex. 7, 32-34, filed in February 2023) and carried through as proposals in this litigation for consistency. After reviewing 3B’s proposed constructions,²¹ GCE identified these terms as areas of possible

²¹ 3B argues in its brief that GCE’s identification (in its April 24, 2023 *Claim Construction Statement*) of thirteen possible terms for construction along with various indefiniteness positions somehow demonstrates that GCE’s current proposed constructions here are infirm. 3B is wrong. The *entire point* of exchanging claim construction statements and the related subsequent discussions is for the parties to identify to each other terms that may need to be construed, consider the other party’s positions, agree where possible via meet and confer, and then brief the remaining issues. That is exactly what happened here. Just because GCE elected not to ask the Court to construe particular claim terms and/or suggested compromise constructions does not mean GCE’s positions were incorrect. It simply means GCE is not litigating to ground every

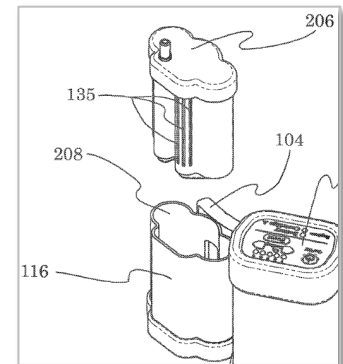
agreement and offered compromise constructions (those labeled [B] in the subsections below).

Declaration of Timothy Cremen (“Cremen Decl.”), Ex. 28, p. 1 (May 11, 2023 email from Timothy Cremen). 3B refused to accept the compromise constructions or offer any counterproposals to avoid the need to submit these terms to the Court. *Id.* (May 15, 2023 email from David Atallah).²²

A. “Receptacle” (’628 & ’614 Patents)

GCE’s Proposed Construction	3B’s Proposed Construction
[A] “a structure that releasably interfaces with the inlet(s) and outlet(s) of the separation cartridge and at least partially contains the separation cartridge” -or- [B] “a structure configured to releasably receive and at least partially contain the separation cartridge”	Plain and ordinary meaning, which is “a space configured to receive and contain something”

The parties appear to agree that the ’628 and ’614 Patents’ receptacle 208 for separation cartridge 206 (*see* FIG. 7, reproduced in part here) is what is covered by “receptacle” in the claims, which specify that the receptacle in question is the structure from which a “separation cartridge is selectively removable” (’614 Patent, claims 1, 11; ’628 Patent, claim 1).



3B argues GCE’s construction is too limiting because “the specification also identifies another receptacle for receiving and containing the power module” (receptacle 210 holding

possible issue. Nor is it GCE that is holding stubbornly to constructions that, on their face, should be able to be resolved without Court intervention.

²² Although it had no obligation to do so, GCE notified 3B that it intended to include the alternative constructions in its Opening Brief so that 3B could comment on them if it wished (it did). There was no nefarious purpose for this as 3B implies.

battery 108). 3B's *Opening Brief* at 15-16. In other words, 3B wishes to advance a generic construction of "receptacle" that would apply to **both** the battery receptacle 210 and the separation cartridge receptacle 208 discussed in the specification. But this is legal error—it is the **claimed** receptacle that must be construed. *See Aventis Pharms., Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1374 (Fed. Cir. 2013) ("We have previously held that the same claim term can have different constructions depending upon the context of how the term is used within the claims and specification.").

3B further argues that the "releasably interfaces"/"releasably receive" portions of GCE's proposed constructions are improper because: (i) there is "nothing about the plain and ordinary meaning of the term" that would support this language; and (ii) GCE is allegedly importing features of the specification into the construction. 3B's *Opening Brief* at 17-18. These arguments are baseless. First, as discussed in GCE's *Opening Brief*, the general understanding of "receptacle" would include wall electrical receptacles releasably interfacing with male plugs (*e.g.*, plugs can be inserted and removed) or trash bins releasably receiving trash (*e.g.*, trash bags can be placed in and removed). These are basic concepts related to the meaning of "receptacle" and its ordinary meaning as shown in the dictionary citations provided by GCE. Moreover, 3B asserts that ***the entire point of the '628 and '614 Patents is to provide replaceable separation cartridges***. 3B's *Opening Brief* at 3-5. 3B cannot argue that replaceable separation cartridges are the basis of the patents if the receptacles do not "releasably interface" with and/or "releasably receive" the cartridges.

Finally, 3B argues that GCE's constructions are "importing additional elements" that are "already separately claimed," such as "inlet(s)," "outlet(s)," and "separation cartridge." 3B's *Opening Brief* at 16-17. This is also wrong. While GCE's construction explains what the

“receptacle” is in terms of, for example, the “separation cartridge,” it does not require the receptacle include the separation cartridge, and thus does not repeat the error noted by the Federal Circuit in *TMI Prods. v. Rosen Entertainment Sys., L.P.*, 610 F. App’x 968, 971-972 (Fed. Cir. 2015). There is nothing wrong with describing a claim element in terms of other claim elements.

B. “Selectively Removable [From A Receptacle]” (’628 & ’614 Patents)

GCE’s Proposed Construction	3B’s Proposed Construction
[A] “withdrawable or separable as a whole from a receptacle” -or- [B] “can be individually chosen to be withdrawn” [from the receptacle]	Plain and ordinary meaning, which is “can be chosen to be removed” [from a receptacle]

The parties agree that “selectively removable” means that a particular component (in this case the separation cartridge) can be chosen to be withdrawn from the receptacle, as shown in the ’628 and ’614 Patents’ FIG. 7. GCE’s proposed constructions are more appropriate for at least two reasons, however. *First*, 3B’s construction defines a word with the same word—“removable” with “removed”—which is disfavored and not informative. *See Abbott Labs. v. Sandoz, Inc.*, 544 F.3d 1341, 1360 (Fed. Cir. 2008) (“Claim construction is for the purpose of explaining and defining terms in the claims, and usually requires use of words other than the words that are being defined.”). *Second*, the intrinsic record shows that the separation cartridge 206 is removable from the receptacle 208 as a single component. In this regard, it is both “individually chosen” for withdrawal (*e.g.*, separation cartridge 206 can be removed without removing other components such as the battery) and withdrawable/separable “as a whole” (*e.g.*, separation cartridge 206 is removed as an entire component and not part-by-part). These features reflect what GCE has described as the *entire point of the ’628 and ’614 Patents*—easily

removable and replaceable separation cartridges. 3B's *Opening Brief* at 3-5. 3B's construction does not reflect these features and is therefore incorrect.

3B argues that “selectively” and “removable” are well-known and easily-understood terms. GCE does not disagree that these terms, individually, are well-understood.²³ However, “selectively removable” as a phrase is not common and does not have a plain and ordinary meaning in the art. Thus, the Court should look to the intrinsic record to understand what is meant by “selectively removable.” *On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer*, 386 F.3d 1133, 1138-39 (Fed. Cir. 2004) (stating that a court should look to the intrinsic record when the term-at-issue has “no precise and generally understood meaning in the art,” even when extrinsic evidence supports a different meaning). As explained above, the intrinsic record supports GCE's construction.

3B also argues that GCE's construction reads “selectively” out of the phrase “selectively removable,” which is allegedly improper in view of *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 884 F.3d at 1315, 1376 (Fed. Cir. 2016) (holding the preferred claim construction gives meaning to all of the terms of the claim). 3B's *Opening Brief* at 19-20. Not

²³ See, e.g., Ex. 15 (“*American Heritage*”) (defining “select” as, e.g., “adj. 1. [s]ingled out in preference; chosen” and “remove” as, e.g., “to transfer or convey from one place to another”); Ex. 16 (“*New Oxford*”) (defining “selectively” as, e.g., “adj. (of a group of people or things) carefully chosen from a larger number as being the best or most valuable” and “remove” as, e.g., “take away (something unwanted or unnecessary) from the position it occupies”); Ex. 17 (“*Bloomsbury*”) (defining “selectively” as, e.g., “chosen from several others and given special treatment or a special privilege” and “remove” as, e.g., “to transfer somebody or something to another place, or change a place of residence”); Ex. 18 (“*Webster*”) (defining “selectively” as, e.g., “in a selective manner: by selection,” “select” as, e.g., “to choose from a number of group usu. By fitness, excellence, or other distinguishing feature,” “remove” as “to change or shift the location, position, station, or residence of,” and “removable” as, e.g., “capable of being removed, displaced, transferred, dismissed, or eradicated”).

so—both “as a whole” and “individually chosen” define “selectively” for at least the reasons above. 3B’s *Opening Brief* at 19.

V. CONCLUSION

In view of above, GCE requests that the Court adopt GCE’s proposed constructions.

Dated: June 21, 2023

Respectfully submitted,

By: /s/ Robert M. Masters

SHEPPARD, MULLIN, RICHTER &
HAMPTON LLP

Robert M. Masters (Bar No. 14770)

Timothy P. Cremen (*pro hac vice*)

Roy Jung (*pro hac vice*)

2099 Pennsylvania Avenue, N.W.

Suite 100

Washington, DC 20006-6801

Telephone: (202) 747-1900

Facsimile: (202) 747-1901

RMasters@shepparmullin.com

TCremen@sheppardmullin.com

RJung@sheppardmullin.com

Eric K. Gill (*pro hac vice*)

12275 El Camino Real, Suite 100

San Diego, CA 92130-4092

Telephone: (858) 720-8900

Facsimile: (858) 509-3691

EGill@sheppardmullin.com

Attorneys for Plaintiff

GCE GAS CONTROL EQUIPMENT INC.

CERTIFICATE OF SERVICE

I hereby certify that, on June 21, 2023, I caused the foregoing to be electronically filed with the Clerk of the District Court using the CM/ECF system. As such, under Local Rule 102.1(c), the corresponding notice of electronic filing constitutes a certificate of service as to all counsel of record to whom electronic notice is sent.

/s/ Robert M .Masters

Robert M. Masters

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND**

GCE GAS CONTROL EQUIPMENT INC.,

Plaintiff/Counter-Defendant,

V.

3B MEDICAL MANUFACTURING, LLC,

Defendant/Counter-Plaintiff.

[illegible]

C.A. No. 8:22-cv-02550-TDC

DEMAND FOR JURY TRIAL

**DECLARATION OF GEOFFREY DEANE, PH.D., IN SUPPORT OF GCE'S
RESPONSIVE OPENING CLAIM CONSTRUCTION BRIEF**

I. INTRODUCTION

1. My name is Geoffrey Deane, Ph.D. I am over eighteen years of age, and make this declaration in support of GCE Gas Control Equipment Inc.’s Responsive Claim Construction Brief. I am an expert in the field of portable oxygen concentrators (“POCs”), including in the subject matter described by the patents discussed herein,¹ for at least the reasons described in my May 22, 2023 *Declaration In Support Of GCE Gas Control Equipment Inc.’s Opening Opening Claim Construction Brief* (“*First Declaration*”).

2. I have prepared this Declaration as an expert witness retained by GCE Gas Control Equipment Inc. (“GCE”). As mentioned above, I previously prepared my *First Declaration*, the opinions from which I incorporate herein. In this Declaration, I give additional opinions in response to positions advanced by 3B Medical Manufacturing, LLC (“3B”) in its May 22, 2023 *Opening Claim Construction Brief*. I provide technical bases for these opinions below.

3. This Declaration contains statements of my opinions formed to date and the bases and reasons for those opinions. I may offer additional opinions based on further review of materials in this matter and/or further positions advanced by 3B or any expert witness retained by 3B. I make this Declaration based upon my own personal knowledge and information that I have reviewed as referenced herein or in my *Initial Declaration*, and, if called upon to testify, would testify competently to the matters contained herein.

¹ U.S. Patent No. 10,357,628 (Ex. 1; “the ’628 patent”); and U.S. Patent No. 11,389,614 (Ex. 3; “the ’614 patent”).

II. TERMS FOR CONSTRUCTION

A. “Separation Cartridge” (’628 & ’614 Patents)

GCE’s Proposed Construction	3B’s Proposed Construction
“a housing/container that holds multiple adsorbent columns for gas separation and provides separate inlet and outlet ports for each adsorbent column”	Plain and ordinary meaning, which is “a cartridge configured to separate gas”

4. I have reviewed the positions advanced in 3B’s *Opening Claim Construction Brief* for this term. It remains my opinion that GCE’s construction is correct.

5. 3B primarily argues that the separation cartridge described by the ’628 and ’614 Patents is just “[a]n example separation cartridge 206” and that “it is improper to limit the claims to a specification embodiment.” 3B’s *Opening Brief* at 10-14.

6. That is not correct. **Nowhere** do the ’628 and ’614 Patents describe the separation cartridge of FIGS 15-16 as being an “example” of the invention. In fact, the opposite is true. The ’628 and ’614 Patents repeatedly describe the three-bed separation cartridge shown in FIGS. 15-16 as the invention itself, not just an exemplary embodiment. No separation cartridge with a single adsorbent bed is described or even remotely contemplated by the ’628 and ’614 Patents.

7. The only portion of the ’628 and ’614 Patents 3B advances to support its position that the three-bed separation cartridge of FIGS. 15-16 is just an “example” is the following:

This constitutes the general principles of vacuum swing adsorption (VSA) for gas separation. All phases can be accomplished with a single column, or with a plurality of columns. If a plurality of columns are used, it is preferable to have a multiple of three (illustrated as 130 a-130 c in FIG. 5) that are sequenced out of phase for the different cycle phases in order to maintain constant product flow.

Ex. 1 17:13-19.

8. 3B characterizes this passage as “mak[ing] it clear that while multiple columns are disclosed in some embodiments, the separation cartridge can have just one single column.” 3B’s *Opening Brief* at 11. This characterization is wrong for at least three reasons.

9. First, multiple columns are not just disclosed in “some embodiments,” they are explicitly and repeatedly described as the invention by the ’628 and ’614 Patents.

10. Second, this passage is simply stating that the VSA process, discussed generally in the immediately preceding specification paragraphs, can be implemented using one or multiple columns (beds). Such single-bed operation can be used in industrial-scale processes, for example, but not in POCs due to their different operational requirements (*e.g.*, weight, size, flow, sound, *etc.*). This is a rather basic understanding that a POSITA would have possessed that I do not believe is disputed by the parties. Importantly, what this passage does not say is that the invention’s separation cartridge may be implemented with only one adsorbent bed. It could not have been (and cannot now be), as discussed in the following paragraphs.

11. Third, this passage confirms that a plurality of columns is used to “maintain constant product flow.” A POSITA would have understood that constant or continuous flow is, as one would expect by the name, an uninterrupted oxygen flow to the patient. As recognized by the passage cited by 3B, constant or continuous flow requires a multiple-bed system, at least in the context of a functional POC at the time and now. This is at base because, at the time (and now), each column had to be periodically purged of nitrogen, and the purge process would necessarily interrupt the adsorbing process. By alternating the adsorbing process between multiple beds and properly sequencing their operation, continuous flow could be (and can be) achieved. I discussed this concept at ¶13 of my First Declaration.

12. Indeed, multiple bed systems were the only workable solution for POCs in 2005 (and even now) to provide continuous flow in a portable package. *See, e.g.*, Ex. 26 at ¶¶[0006], [0019] and FIGS. 1, 4, and 6 (multiple adsorbers 30, 32); Ex. 27 at ¶¶[0008], [0028], [0029] and FIGS. 1, 2, 7-9 (multiple adsorbers 30, 32); Ex 22 at ¶[0070] and FIGS. 3-5, 7, 8, 11 (zeolite beds 12, 14); Ex. 20 at 7:16-43; Ex. 23 at ¶¶[0006], [0066] and FIGS. 3, 5, 6, and 13 (adsorbent bed columns 508a, 508b). POSITAs knew and understood that multi-bed POCs were necessary to make a POC appropriately function. 3B has not shown or explained how a single-bed POC would have been possible in 2005 (or now).

13. Against this backdrop, the '628 and '614 Patents state that the allegedly inventive POC **must** provide continuous flow:

The industry has developed a set of recommendations for systems targeted to provide portable oxygen for ambulatory patients. The Fifth Oxygen Consensus Conference set forth the following standards for long-term oxygen therapy ambulatory equipment: 1) equipment must weigh less than 10 lbs., 2) **equipment must provide the equivalent of 2 liter/min of continuous flow O₂**, and 3) the flow rate must be maintained for four hours or more. Thus, ambulatory equipment, or personal oxygen systems (POS), are to be inconspicuous to the public as well as unrestricting to the patient. Cylinders and other liquid oxygen systems tend to be bulky, which interferes with normal daily activities. Similarly, cylinders and liquid oxygen systems are difficult to conceal from public view. Ideally, a POS is small, lightweight, quiet, and flexible which allows the device to be concealed from the public. ***The present invention, whereby oxygen rich gas is provided to a patient from a wearable oxygen concentrator, meets and exceeds these standards.***

Ex. 1, 2:33-50 (emphasis added).

14. In other words, the '628 and '614 Patents explicitly state: (i) that their invention must provide continuous flow (Ex. 1, 2:33-50); and (ii) that the configuration that provides continuous flow is the depicted three-bed cartridge (Ex. 1 17:13-19). Taken together, these

passages confirm that the separation cartridge must include multiple adsorbent beds and that GCE's construction is correct.

15. Moreover, this understanding is also confirmed by the fact that a POSITA would have understood that a multiple-bed system was the only workable solution in 2005 (and now) to provide continuous flow. Thus, if the '628 and '614 Patents were really somehow directed to a POC that could provide continuous flow using a single bed, they would have had to explain how such an advance was possible by detailing its structure and function. The '628 and '614 Patents provide no such explanation. The only appropriate conclusion to draw from this is that a single bed cartridge was not part of the '628 and '614 Patents' purported invention.

16. I reserve my right to further address 3B's proposed constructions and/or the opinions of any 3B declarant after reviewing 3B's briefing.

B. "A First Bed Of Adsorbent Material Configured To Preferentially Adsorb Nitrogen; A First Inlet Oriented In A Direction, Wherein The First Inlet Is Configured To Direct A Flow Of Ambient Air To The First Bed; A First Outlet Oriented In The Direction, Wherein The First Outlet Is Configured To Expel Product Gas Flowing Downstream Of The First Bed; A Second Bed Of Adsorbent Material Configured To Preferentially Adsorb Nitrogen; A Second Inlet Oriented In The Direction, Wherein The Second Inlet Is Configured To Direct A Flow Of Ambient Air To The Second Bed; A Second Outlet Oriented In The Direction, Wherein The Second Outlet Is Configured To Expel Product Gas Flowing Downstream Of The Second Bed;" ('614 Patent)

GCE's Proposed Construction	3B's Proposed Construction
"a separation cartridge containing: (i) a first bed of adsorbent material configured to preferentially adsorb nitrogen; (ii) a first inlet oriented in a direction, wherein the first inlet is configured to direct a flow of ambient air to the first bed; (iii) a first outlet oriented in the direction, wherein the first outlet is configured to expel product gas flowing downstream of the first bed; (iv) a second bed of adsorbent material configured to	No construction necessary. "A separation cartridge containing:" should not be added into claim 13, as GCE proposes; GCE does not attempt to construe any of the actual quoted claim language in the claim term GCE identified.

preferentially adsorb nitrogen; (v) a second inlet oriented in the direction, wherein the second inlet is configured to direct a flow of ambient air to the second bed; and (vi) a second outlet oriented in the direction, wherein the second outlet is configured to expel product gas flowing downstream of the second bed”; or otherwise indefinite	
---	--

17. I have reviewed the positions advanced in 3B’s *Opening Claim Construction Brief* for this term. It remains my opinion that GCE’s construction is correct.

18. The main question regarding this term is whether it is indefinite, or can be saved by construing it to confirm that the recited “inlet[s],” “outlet[s],” and “bed[s] of adsorbent material” are a part of a “separation cartridge.” Without specifying that these elements are part of a separation cartridge, the scope of the claim cannot be reasonably determined. For example, it is unclear what “inlets” and “outlets” are being claimed because the ’614 Patent describes two different kinds of inlets and outlets: a system inlet (135) and outlet (103) and separation cartridge inlets (132a-c) and outlets (134a-c). *Compare* Ex. 1, FIG 5 *with id.*, FIG. 15.

19. I reserve my right to further address 3B’s proposed constructions and/or the opinions of any 3B declarant after reviewing 3B’s briefing.

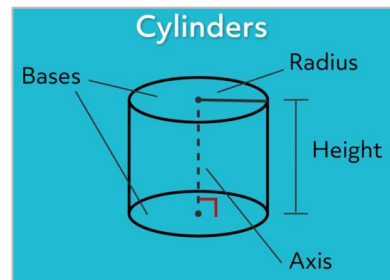
C. “Axis” / “Disposed Along [An]/[The] Axis” (’628 Patent)

Term	GCE’s Proposed Construction	3B’s Proposed Construction
axis	“the centerline of the bed of adsorbent material”	Plain and ordinary meaning, which is “a reference line”
disposed along [an]/[the] axis	“arranged on the axis such that the axis passes through”	Plain and ordinary meaning, which is “arranged on the axis”

20. I have reviewed the positions advanced in 3B’s *Opening Claim Construction Brief* for these terms. It remains my opinion that GCE’s constructions are correct.

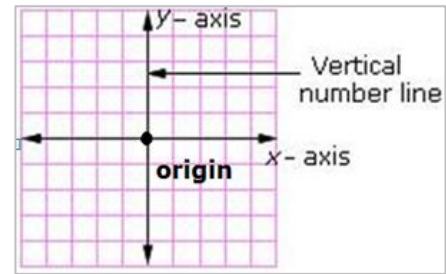
21. 3B's constructions attempt to impose an improper "mathematical" definition of "axis" (e.g., the x and y lines of a mathematical graph). See 3B's *Opening Brief* at 20 ("As understood from mathematics, the term 'axis' is 'a reference line.'").

22. "Axis," when used in conjunction with a physical object (e.g., a cylinder), means a straight line with respect to which a body or figure is symmetrical or about which a body rotates, as shown in the figure reproduced to the right.² Axes have relevance when associated with a particular geometry. In the case of the illustrated cylinder, or other elongated volumes, when a POSITA says "axis," without other modifiers, it is unequivocally the line that passes through the center of the ends of the object, as shown above. This definition is reflected in GCE's proposed constructions and matches what is shown in FIG. 16 of the '628 and '614 Patents.



² See, e.g., Ex. 18A ("*Webster's*") at p. 153 (defining "axis" as, e.g., "[1]b: a straight line with respect to which a body, figure, or system of points is either radially or bilaterally symmetrical"); Ex. 17A ("*Bloomsbury*") at pp. 120-121 (defining "axis" as, e.g., "2. MATHS LINE AROUND WHICH SHAPE IS SYMMETRICAL a straight line around which a geometric figure or three-dimensional object is symmetrical"); Ex. 16A ("*New Oxford*") at pp. 112-113 (defining "axis" as, e.g., "an imaginary straight line passing through the center of a symmetrical solid" or "an imaginary line that divides something into equal or roughly equal halves, esp. in the direction of its greatest length"); Ex. 15A ("*American Heritage*") at p. 126 (defining "axis" as, e.g., "2 *Mathematics* a. An unlimited line, half-line, or line segment serving to orient a space or geometric object, especially in a line about which the object is symmetric. . . . 3. A center line to which parts of a structure or body may be referred"). See also Deane Decl., ¶76.

23. 3B argues (without any underlying expert support) that the meaning of “axis” applicable here is not that of an object’s axis, but actually that of the axes of **mathematical graphs**, such as those shown in the illustration here.³ 3B’s *Opening Brief* at 22. This is plainly incorrect. No portion of the ’628 and ’614

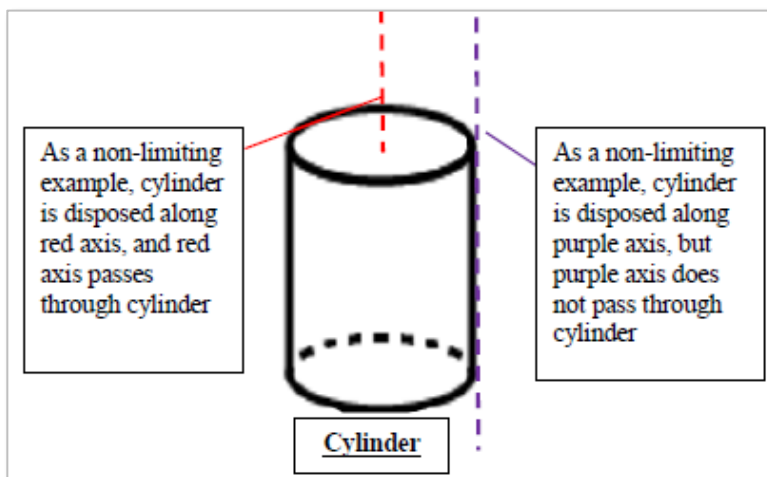


Patents provides any description of its configuration using any graphs, grids, or coordinate systems based on an x- or y-axis.

24. “Axis,” “centerline,” “central axis,” and “axis of symmetry” all mean the same thing in the context of the adsorbent beds described in the ’628 and ’614 Patents.

25. 3B argues that “disposed along [an]/[the] axis” must be broadly construed to include at least the options illustrated in 3B’s illustration on p. 24 of its *Opening Brief*

(reproduced here). A POSITA would not have understood “disposed along [an]/[the] axis” in this manner. *First*, the purple line is not an “axis.” It is just a line drawn near the illustrated cylinder with no specific



significance relative to the cylinder. *Second*, nowhere in the ’628 and ’614 Patents is there any

³ While this is one meaning of “axis” as shown in the dictionaries relied on by GCE (see Ex. 15A, p. 126, definition 2b of “axis”; Ex. 16A, pp. 112-113, definition 2 of “axis”; Ex. 17A, p. 120, definition 3 of Axis”; Ex. 18A, p. 153, definition 1d of “axis”), it is in each case a minor meaning specifically described as being relevant to coordinate systems, not the geometry of physical object.

description—or even a suggestion—of its (alleged) invention in the context of “lines” or any indication that an “axis” can be redefined as a random line. Third, the purple line does not meet 3B’s proposed construction of “disposed along [an]/[the] axis” as “arranged on the axis” because the illustrated cylinder is arranged **next to** the axis, not **on** it.

26. I reserve my right to further address 3B’s proposed constructions and/or the opinions of any 3B declarant after reviewing 3B’s briefing.

D. “Fluid Flowing Along The First Line Contacts The Adsorbent Material Of The Bed” / “Fluid Flowing Along The Second Line Does Not Contact The Adsorbent Material Of The Bed” (Claims 1, 12) “Fluid Flowing Along The First Line Contacts The Adsorbent Material Of The First Bed” / “Fluid Flowing Along The Second Line Does Not Contact The Adsorbent Material Of The First Bed” / “Fluid Flowing Along The Third Line Contacts The Adsorbent Material Of The Second Bed” / “Fluid Flowing Along The Fourth Line Does Not Contact The Adsorbent Material Of The Second Bed” (Claim 13) (’614 Patent)⁴

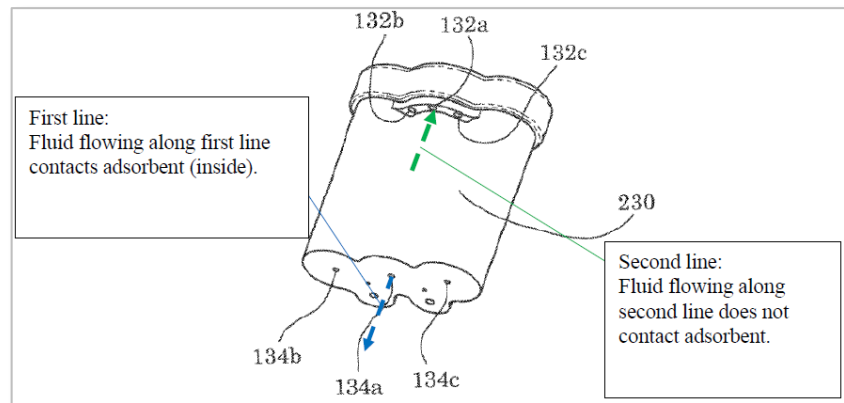
GCE’s Proposed Construction	3B’s Proposed Construction
Indefinite	Plain and ordinary meaning. As to “contact” and “does not contact,” the plain and ordinary meanings are “touch” and “does not touch,” respectively. As to “fluid [flowing/flows] along,” the plain and ordinary meaning is “fluid [moving/moves] on.”

27. I have reviewed the positions advanced in 3B’s *Opening Claim Construction Brief* for these terms. It remains my opinion that GCE’s constructions are correct.

⁴ Also, “when fluid flows through the separation cartridge, fluid flows along the first line in the second direction” / “when fluid flows through the separation cartridge . . . fluid flows along the second line in the first direction” in dependent claim 8 is indefinite for similar reasons as it does not resolve any of the ambiguities below. It merely specifies a direction of flow.

28. 3B did not explain how the terms as a whole are definite. 3B only addressed the meanings of the constituent terms “contact”/“does not contact” and “fluid [flowing/flows] along.” 3B’s *Opening Brief* at 31.

29. But even 3B’s limited briefing demonstrates the terms’ indefiniteness. Specifically, 3B sought to explain the concept of “flowing along” using an annotated version of FIG. 15 of the ’628 and ’614 Patents (reproduced here). *Opening*



Brief at 32. But the blue dashed line identified by 3B as the “first line” is **outside** separation cartridge 230. Thus, fluid flowing along this illustrated “first line” does not contact any adsorbent material, which is contrary to the requirement of each of these disputed terms that “fluid flowing along the first line contacts the adsorbent material of the [first] bed.”

30. 3B tries to obscure this inconsistency by stating in the label of the “first line” in the annotated figure that the fluid contacts the adsorbent “(inside)” the cartridge. Thus, it appears to be 3B’s position that the disputed terms really mean that fluid only **sometimes** contacts the adsorbent while flowing along the first line. But that is not what the claim language recites and leaves a POSITA unable to determine whether there is infringement or not in a particular configuration. Thus, these terms, and the claims of which they are a part, are indefinite.

31. I reserve my right to further address 3B’s proposed constructions and/or the opinions of any 3B declarant after reviewing 3B’s briefing.

E. “Receptacle” (’628 & ’614 Patents)

GCE’s Proposed Construction	3B’s Proposed Construction
“a structure that releasably interfaces with the inlet(s) and outlet(s) of the separation cartridge and at least partially contains the separation cartridge” -or- “a structure configured to releasably receive and at least partially contain the separation cartridge”	Plain and ordinary meaning, which is “a space configured to receive and contain something”

32. I have reviewed the positions advanced in 3B’s *Opening Claim Construction Brief* for this term. It remains my opinion that GCE’s constructions are correct.

33. 3B argues that “receptacle” should be construed to cover both the battery receptacle 210 and the separation cartridge receptacle 208 discussed in the specification. 3B’s *Opening Brief* at 15-16. But a POSITA would have understood that the particular “receptacle” in the claims is the separation cartridge receptacle 208, and would construe “receptacle” in that context.

34. I reserve my right to further address 3B’s proposed constructions and/or the opinions of any 3B declarant after reviewing 3B’s responsive briefing.

F. “Selectively Removable [From A Receptacle]” (’628 & ’614 Patents)

GCE’s Proposed Construction	3B’s Proposed Construction
“withdrawable or separable as a whole from a receptacle” -or- “can be individually chosen to be withdrawn” [from the receptacle]	Plain and ordinary meaning, which is “can be chosen to be removed” [from a receptacle]

35. I have reviewed the positions advanced in 3B’s *Opening Claim Construction Brief* for this term. It remains my opinion that GCE’s constructions are correct.

36. 3B argues that “selectively” and “removable” are well-known and easily-understood terms. 3B’s *Opening Brief* at 19. I do not disagree that those terms are individually understood. However, “selectively removable” as a phrase does not have a plain and ordinary meaning in the art. Thus, one must look to the intrinsic record to understand what is meant by “selectively removable.” GCE’s construction reflects what is described in the intrinsic record.

37. 3B argues that GCE’s construction reads “selectively” out of the phrase “selectively removable.” 3B’s *Opening Brief* at 19. I disagree. Both “as a whole” (*e.g.*, separation cartridge 206 is removed as an entire component and not part-by-part) and “individually chosen” (*e.g.*, separation cartridge 206 can be removed without removing other components such as the battery) define “selectively.” And these features reflect what 3B has described as the entire point of the ’628 and ’614 patents—easily removable and replaceable separation cartridges. 3B’s *Opening Brief* at 3-5.

38. I reserve my right to further address 3B’s proposed constructions and/or the opinions of any 3B declarant after reviewing 3B’s responsive briefing.

III. RESERVATION OF RIGHTS

39. My opinions are based upon the information that I have considered to date. I reserve the right to supplement my opinions in the future to respond to any arguments raised by 3B and/or any declarants offered by 3B and to take into account new information that becomes available to me.

40. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were

made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on June 21, 2023.

By: 
Geoffrey Deane, Ph.D.

