UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALPINESTARS S.P.A. AND
ALPINESTARS USA INC.
Petitioners,

v.

DAINESE S.P.A.
Patent Owner.

Case IPR2025-00750
Patent No. 12,012,065

PATENT OWNER'S PRELIMINARY RESPONSE UNDER 37 C.F.R. § 42.107(a)

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EXHIBIT LIST

Exhibit Number	Description
2009	Declaration of Victoria Q. Smith
2010	Declaration of Thomas G. Livernois
2011	CV of Thomas G. Livernois
2012	U.S. Patent Application Publication No. 2012/0032422 ("Dainese")
2013	Plaintiff's Infringement Contentions from *Dainese S.p.A. v. Alpinestars USA et al.*, 2:24-cv-07066 (CDCA 2024)

Pursuant to 37 C.F.R. § 42.107(a), Patent Owner, Dainese S.p.A., responds preliminarily as follows to the Petition of Alpinestars S.p.A. and Alpinestars USA Inc. (collectively, "Petitioners") for *Inter Partes* Review of U.S. Patent No. 12,012,065 ("'065 Patent"). Petitioners challenge claims 1-22 of the '065 Patent ("Challenged Claims").

The '065 Patent issued over prior art that was at least as relevant as, if not more relevant than, the prior art on which Petitioners rely for Grounds 1-3 ("Asserted Prior Art"). The Board should deny the petition on this basis alone.

In an attempt to mask the fatal flaws in the Asserted Prior Art, Petitioners manufactured non-existent claim construction issues with respect to three elements in the independent claims of the '065 Patent. One of those elements – mesh – was literally present in the prior art of record in the '065 Patent's prosecution history, but is completely absent from any of the Asserted Prior Art on which Petitioners rely in Grounds 1 and 2. In Ground 3, mesh is also absent from EP'297 and its use in CN'842 is strictly for the material of a vest and does not teach encasing an inflatable inner casing body within layers of mesh to create an inflatable and expandable structure. In contrast, the prior art on which the Examiner relied did disclose mesh which encased an inflatable casing body. Claim 8 of the '065 Patent, for example, recites an "inflatable element" defined by mesh portions surrounding a casing body.

Patent Owner added the other two elements – dividing walls and planar structure – in response to a prior art rejection, and argued the patentability of the claims because of those two elements. The prior art on which the Examiner relied had tie elements with a thread-like form. Patent Owner argued successfully that these thread-like tie elements were not dividing walls. Patent Owner also argued that prior art lacked the dividing wall structure and the planar structure in support of the independent claims. The Examiner agreed, allowed the application, and the ’065 Patent issued.

The last element of Claim 1 of the ’065 Patent recites formation of the planar structure by inflating the casing body such that its portions press against the top and bottom mesh portions, as well as against the tie elements (dividing walls). This pressing of the inflated portions of the casing body against each other (through the dividing walls) and the top and bottom mesh portions results in a continuous protective wall, which consequently determines the planar structure.

Beyond presenting flawed claim construction arguments, Petitioners fail to appreciate the ’065 Patent’s teaching of the synergistic effect of the mesh material, the dividing walls, and the portions of the casing body, to define a planar structure. The mesh portions facilitate ventilation when the portions of the inflatable inner casing body are deflated. Those same mesh portions (along with the dividing walls) facilitate the formation of the planar structure when the casing body is

inflated. In practice, such planar structure results from the inflated portions of the casing body pressing against each other (through the dividing walls) and against the top and bottom mesh portions in order to protect against energy transmission from a crash, thus enhancing protection for a wearer. EX1001, 4:67-5:3. Because Petitioners failed to appreciate this interplay, they also failed to present prior art that, when combined, would provide the synergistic effect of the Challenged Claims.

In addition to advancing problematic claim construction arguments, the Petition suffers from other deficiencies such as failing to establish motivation to combine the Asserted Prior Art, proposing modifications to the primary references EP'536 and EP'297 that would change the principle of operation of, (not to mention frustrate and render inoperable) the inventions disclosed in those primary references, and failing to identify any of the Examiner's analysis as constituting any kind of error during prosecution. The change in principle of operation and resulting inoperability of those primary references make the references nonanalogous art.

Importantly, while Petitioners attempt to bootstrap an argument that the asserted prior art combinations contain the planar structure that the independent claims recite, none of the prior art individually discloses such structure. Consequently, all of the combinations lack the recited planar structure.

Petitioners have the burden to show with particularity why the ’065 Patent is unpatentable. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (*citing* 35 U.S.C. § 312(a)(3)). For the reasons detailed herein, supported by a Declaration (EX2010) from Patent Owner’s expert, Dr. Thomas G. Livernois, Patent Owner submits that Petitioners have failed to carry their burden. Petitioners’ deficient prior art and deficient claim construction justify denial of the Petition. Accordingly, Patent Owner respectfully requests that the Board deny institution.

I. SUMMARY OF DEFICIENCIES IN THE PETITION

The Board should deny institution for the following reasons:

A. Petitioners’ proposed claim construction and manufactured claim construction issues are flawed.

B. Petitioners failed to show that a POSITA would have been motivated to combine the Asserted Prior Art for Grounds 1-3.

C. Petitioners propose modifications to primary references for Grounds 1-3 that would frustrate the purposes of those references and change their principles of operation so as to render them inoperable. The primary references thus are nonanalogous art.

D. Petitioners’ prior art for Grounds 1-3 is no more relevant – and in fact, is less relevant – than the art on which the Examiner relied while the

application for the ’065 Patent was pending. The nonanalogousness of the primary references is but one indicium of this.

E. Petitioners’ prior art combinations fail to show the planar structure that the independent claims recite.

F. Petitioners failed to identify any Examiner error while the application for the ’065 Patent was pending.

II. THE ’065 PATENT AND THE RELEVANT TECHNOLOGY

The ’065 Patent discloses and claims a protective airbag device that provides continuous protection to a wearer through inflation of a casing body 40 having a plurality of parallel finger-like members, surrounded by mesh layers 118, 119 and dividing walls (tie elements) 5. The patent distinguishes among different embodiments of the tie elements. The patent specifically distinguishes between dividing walls and stitches.

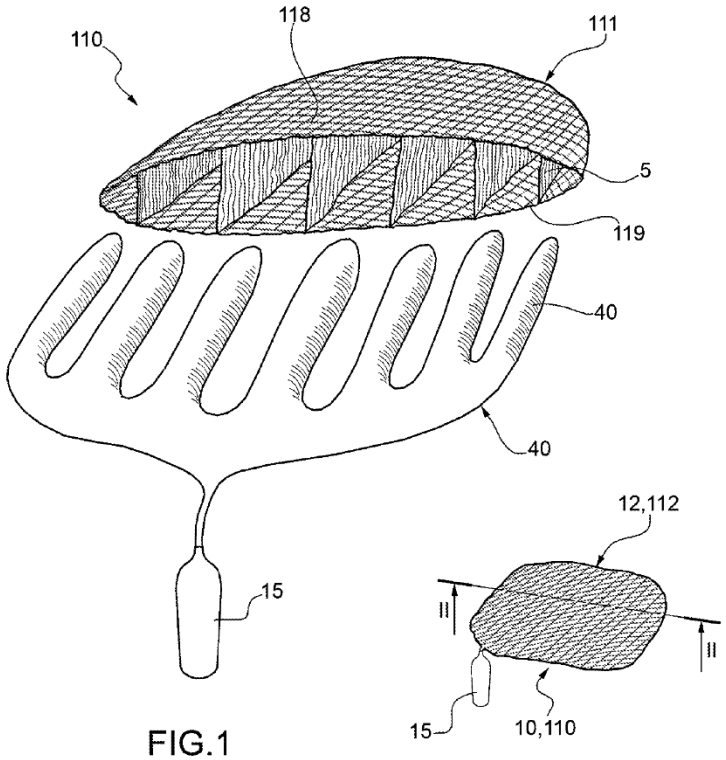


FIG.1

FIG.1A

The tie elements can alternatively be threads, or pieces of fabric, or ribbons, in other words **they can be dividing walls connecting mesh portions of the mesh structure**. Said dividing walls can also be tensioned. The tie elements can be arranged in such a way that a first group of tie elements is arranged in a crossing or oblique condition with respect to a second group of tie elements.

The tie elements can also be made as stitches or topstitching.

EX1001, 3:47-55 (emphasis added).

Dividing walls are not stitches. EX2010, ¶¶63-64, 104, 113, 122-124.

The ’065 Patent’s dividing wall structure is different from the structure in US Published Patent Application No. 2012/0032422 (Dainese ’422), on which the Examiner relied during prosecution. EX2012; EX2010, ¶104. Dainese ’422 does not disclose a wearable device but does disclose an inflatable protective member 2 with mesh layers 10, 11 connected by thread-like tie members 12 enclosing an inflatable structure 5.

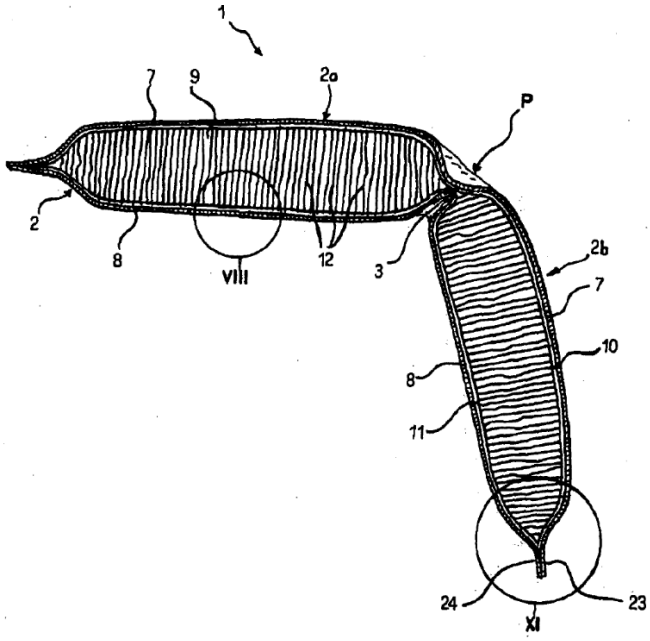


FIG.1

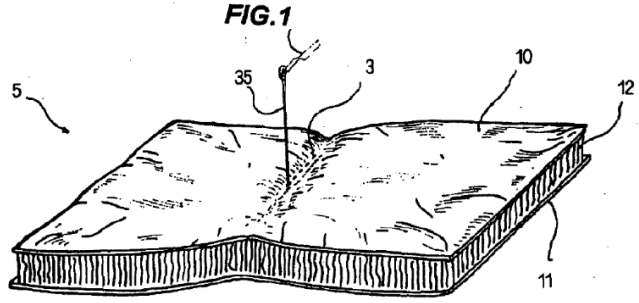


FIG.2

In the example, **the tie members 12 have a thread-like form** and consist of flexible and inextensible members. Therefore, they are suitably designed with dimensions such that, when the inflatable member 2 is in the rest condition, they are preferably untensioned and collapsed inside the internal chamber 9, whereas, when the inflatable member 2 is in the inflated condition, they are under tension, except for example for the zones where the seam 3 is situated.

In particular, **the tie members 12 are distributed** densely within the inflatable member 2, for example with a density of at least one tie member 12 per cm^2 of surface area of the inflatable member 2, even more preferably, still by way of example, with a density of between 1 and 15 threads per cm^2 of surface area of the inflatable member 2, and preferably between 4 and 6 threads per cm^2.

EX2012 ¶¶74-75 (emphasis added).

Dainese ’422 never refers to dividing walls, and never shows a plurality of inflatable members separated by any kind of tie element. EX2010, ¶104.

FIG. 2 of the ’065 Patent shows a mesh structure 111 with a plurality of portions 40a of the inflatable casing body 40. A consequence of this structure is that, when inflated, the portions 40a press together in a continuous band, as FIG. 2

shows. The continuous band constitutes the planar structure, which extends out of the page. EX2010, ¶¶41-42.

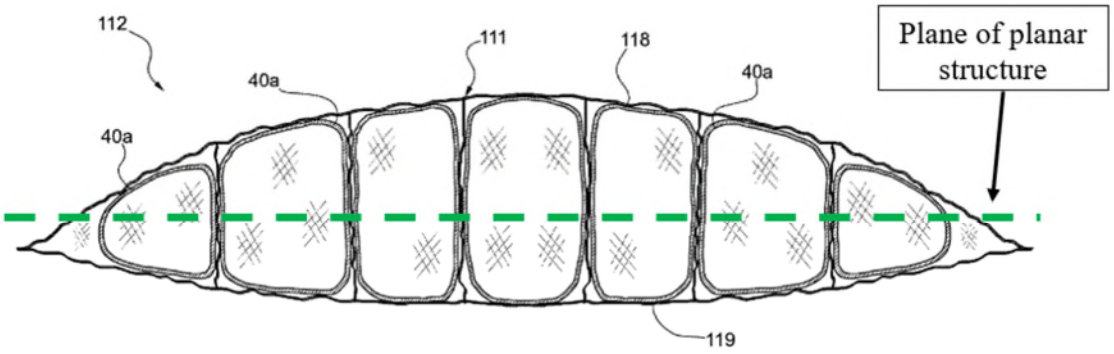


FIG.2

> **The inner partitions or walls can be parallel to one another in such a way as to obtain a plurality of housings or channels parallel to each other within the mesh structure.**
>
> Preferably, the mesh structure includes a plurality of channels side by side, and a casing body for each channel. The channel has the function of the housing according to this disclosure. The casing body has preferably a tubular shape. It follows that once the casing body has been arranged in the respective channel/housing, each channel has a first region occupied by the casing body, and a second region free and intended to house the casing body in an inflated condition. **Since the channels are placed side by side one another, in the inflated condition the individual casing bodies press against each other, to form a cushion of inflated bodies, having a globally planar structure.**

EX1001, 4:56-5:3.

Ventilation in a garment made according to the claims of the ’065 Patent is important:

> **<u>As anticipated above, in the deflated condition the casing body can occupy a minimum space between the mesh portions, and therefore allow maximum ventilation of the item of clothing or garment.</u>**
>
> * * *
>
> The first mesh portion and the second mesh portion actually define a layer of the inflatable element within which the inflatable casing body is arranged. In an embodiment of the present disclosure, the inflatable element comprises at least a third mesh portion overlapping the first mesh portion and the second mesh portion, to define a second layer of the inflatable element. It is possible arranging portions of the casing body alternately between the two layers in order to control the final shape of the inflatable element in a targeted manner, without occupying too much space between the meshes, and thus ensuring ventilation.

EX1001, 2:64-67, 5:31-41.

III. ARGUMENTS

A. Petitioners' Proposed Constructions Should Be Rejected.

Petitioners have cited 37 C.F.R. §42.100(b), which specifies that the claim construction standard is the same as in a patent infringement action. However, in reality Petitioners have tried to revert to the broadest reasonable interpretation standard (BRI), to the extent of ignoring express claim language. Petitioners' approach violates canons of claim construction, and is improper in an IPR. *Id.*

Petitioners are simply wrong in arguing that the Asserted Prior Art discloses the preferred embodiment within the indisputable scope of the claims. Petition, p. 6. As Patent Owner will discuss, there are several claim elements missing in the Asserted Prior Art, and therefore in each of Grounds 1-3. The modifications

Petitioners attempt in order to cure those deficiencies would change the principle of operation of the primary references in Grounds 1-3 (EP'536 and EP'297) so as to render that art inoperable. Such change in principle of operation and resulting inoperability make these references nonanalogous art.

"Prior art is analogous if it is from the same field of endeavor or if it is reasonably pertinent to the particular problem the inventor is trying to solve." *Sanofi-Aventis Deutschland GmbH v. Mylan Pharmaceuticals Inc.*, 66 F.4th 1373, 1377 (Fed. Cir. 2023) ("[A] patent challenger must compare the reference to the challenged patent."); *Circuit Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015) (citation omitted); *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). The analogousness of the prior art relates to motivation to combine references as well. *Airbus S.A.S. v. Firepass Corporation*, 941 F.3d 1374, 1383-1384 (Fed. Cir. 2019). "A reference qualifies as prior art for an obviousness determination only when it is analogous to the claimed invention." *Id.* at 1379. "The combination of elements from non-analogous sources, in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness." *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992).

Even ignoring these deficiencies, the prior art combinations in Grounds 1-3 lack at least the planar structure that the independent claims recite. None of the

references discloses planar structure, so no combination of those references can disclose planar structure.

It is hornbook law that, under the claim construction standard used in Federal court, it is necessary to take into account the patent and its prosecution history, both of which Petitioners have placed in evidence. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc); EX1001, EX1002. While the application for the ’065 Patent was pending, the Examiner followed the BRI standard for construing the claims. MPEP §2111 describes the BRI standard as follows:

> During patent examination, the pending claims must be “given their broadest reasonable interpretation consistent with the specification.” The Federal Circuit’s *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005) expressly recognized that the USPTO employs the “broadest reasonable interpretation” standard:
>
> The Patent and Trademark Office (“PTO”) determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.”
>
> * * *
>
> Because applicant has the opportunity to amend the claims during prosecution, giving a claim its broadest reasonable interpretation will reduce the possibility that the claim, once issued, will be interpreted more broadly than is justified.

1. Petitioners' Proposed Construction of "Mesh Structure" / "Mesh Portion" Ignores the '065 Patent's Ventilation Requirements.

Petitioners simplistically refer to the word "textile" in the '065 Patent, and studiously avoid explaining how the patent defines and uses that term. Petitioners then bootstrap a nonexistent connection to the Asserted Prior Art by using that term. The '065 Patent never uses the word "textile" by itself, however. For example, the '065 Patent refers to "textile technology" that provides "ventilation openings" and ensures ventilation. EX1001, 2:45-50.

Petitioners attempt to use the '065 Patent's reference to "textile" to equate certain structure in the Asserted Prior Art to the recited "mesh" in the independent claims of the '065 Patent. But the patent specification makes clear that the "mesh" in the claims must provide ventilation:

> The first mesh portion and the second mesh portion actually define a layer of the inflatable element within which the inflatable casing body is arranged. In an embodiment of the present disclosure, the inflatable element comprises at least a third mesh portion overlapping the first mesh portion and the second mesh portion, to define a second layer of the inflatable element. It is possible arranging portions of the casing body alternately between the two layers in order to control the final shape of the inflatable element in a targeted manner, without occupying too much space between the meshes, and **thus ensuring ventilation**.

EX1001, 3:31-41 (emphasis added).

The Mazzarolo reference on which the Examiner relied to reject the claims of the application that became the '065 Patent, discloses a casing that can be made

of a breathable material, including mesh. EX1009, ¶54. The Dainese ’422 reference, on which the Examiner also relied, likewise discloses mesh. *See, e.g.*, EX2011, ¶¶69, 70.

Ignoring the plain meaning of “mesh,” Petitioners go back to other embodiments in the ’065 Patent. In an attempt to unravel the plain language of the independent claims, Petitioners go back to the patent’s reference to “textile,” and identify non-mesh structures in the Asserted Prior Art as “mesh.” *See*, *e.g.*, Petition at 18-20; *see also* Petition at 60-62.

2. Petitioners Misconstrue “Tie Element,” Effectively Rewriting the Patent Claims to Read Out “Dividing Walls.”

Petitioners attempt to bootstrap relevance and combinability of the Asserted Prior Art by referring to a mention of stitches in the ’065 Patent and in EP’536, but completely ignoring the fact that the ’065 Patent not only clearly differentiates between stitches and dividing walls, but also uses the express term “dividing wall” in the claims. EX2010, ¶¶42, 47.

While the ’065 Patent application was pending, Patent Owner amended the independent claims to specify that the tie elements are dividing walls. EX1002, 43-44, 46-47. The ’065 Patent differentiates dividing walls from threads. EX1001, 3:47-49. Patent Owner distinguished the dividing walls from tie members 38 in the

Mazzarolo reference. During prosecution, Patent Owner noted that the Mazzarolo tie members 38 have a thread-like form. Ex 1002, 50-51.

Mazzarolo relates to a garment that includes an inflatable protection device 10, with thread-like tie members 38 connecting layers 4 and 6 which encase one or more inflatable bags 12. EX1009, ¶54. Mazzarolo FIGS. 6a and 6b are as follows:

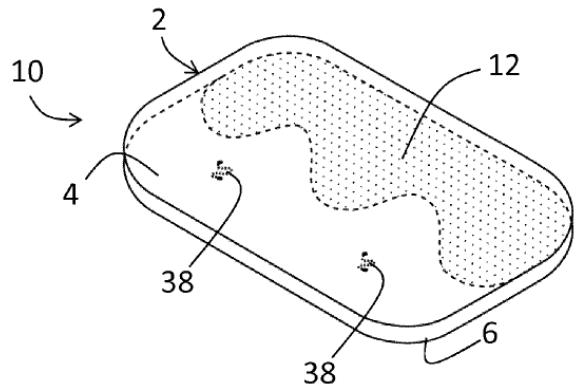


Fig. 6a

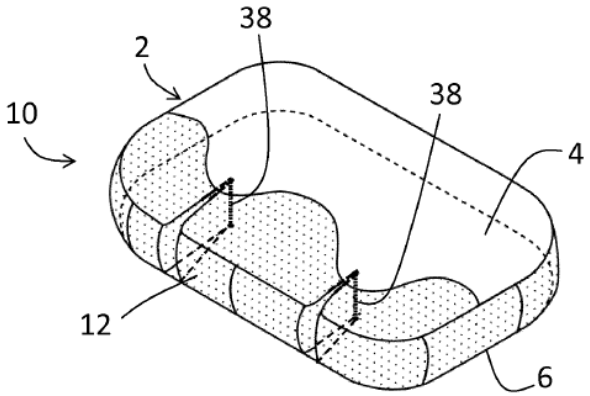


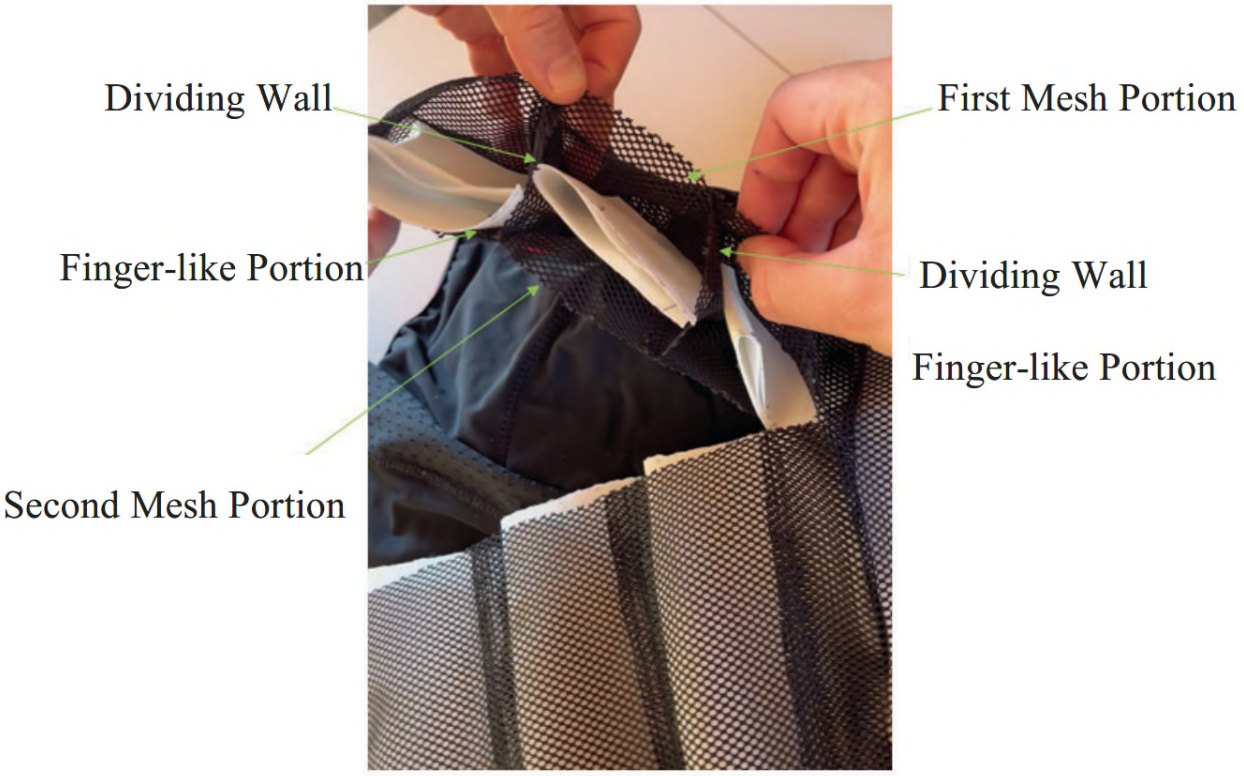
Fig. 6b

Mazzarolo states, "Advantageously, the surfaces 4, 6 of the housing 2 or the inner and outer layers of the casing can be connected by means of tie members 38 (see FIGS. 6a and 6b)." EX1009, ¶56. "As it is shown in FIG. 6*a*, the tie members 38 can be flexible and **they have preferably a thread-like form**." *Id.* ¶58 (emphasis added). "The presence of the tie members 38 inside the housing or the casing does not affect the deployment of **the inflatable bag which will encircle the tie members during its expansion**." *Id.* ¶59 (emphasis added).

The Mazzarolo tie elements are never mentioned as dividing walls. They are threads, which is not the tie element embodiment that the independent claims of the ’065 Patent recite. Similarly to the Mazzarolo threads, none of the Asserted Prior Art discloses any kind of dividing wall. EX2010, ¶104.

Mazzarolo’s threads are like spaced apart fence posts. If slats connect the fence posts, there would be a divider. Without the slats, the posts are just posts.

Petitioners refer incompletely to Patent Owner’s complaint in the underlying Federal District Court action, and attempt to argue that Patent Owner is not construing “tie elements” as “dividing walls.” Petitioners purported to show Patent Owner’s reading of the claims on Petitioner’s accused products by reproducing selective pictures from page 12 of Patent Owner’s complaint. Petition at 12, quoting EX1014 (Complaint) at 12 with photo. But Petitioners failed also to reproduce a photo from page 10 of Patent Owner’s complaint showing that Petitioners’ accused products have dividing walls:



EX1014, ¶33. Petitioners also failed to reproduce the same photo, annotated differently, that Patent Owner provided in its Infringement Contentions:


First Mesh Portion
Tie Elements
Second Mesh Portion



Plaintiff's (Patent Owner's) Infringement Contentions, EX2012, Ex. A, pp. 5-6.

Contrary to Petitioners' contentions, clearly the dividing walls in Petitioners' accused products are not just stitches, and do not pinch the first and second mesh layers together. Patent Owner's claim reading on Petitioners' accused products is fully consistent with Patent Owner's reliance on dividing walls differentiated from thread-like portions in order to secure allowance of the '065 Patent.

In quoting from the ’065 Patent, Petitioners cite one portion of col. 3, but omit the next four lines which distinguish dividing walls from a stitch. Petition at 19. Following is a quote from the ’065 Patent, including both Petitioner’s selective citation and the immediately following text (emphasis added for ease of reference):

> Also with the term tie element is meant an element in the broad sense, that is to say an element which is tensioned between the two mesh portions when the inflatable casing body is inflated. The tie element could also be a stitch.
>
> The tie elements can alternatively be threads, or pieces of fabric, or ribbons, **in other words they can be dividing walls connecting mesh portions of the mesh structure**. Said dividing walls can also be tensioned.
>
> **The tie elements can also be made as stitches** or topstitching.

EX1001, 3:43-55.

The figures of the ’065 Patent clearly show tie elements as dividing walls, and the patent specification calls out dividing walls, with stitches or topstitching as alternatives, and not dividing walls. For example, FIG. 1 clearly shows dividing walls:

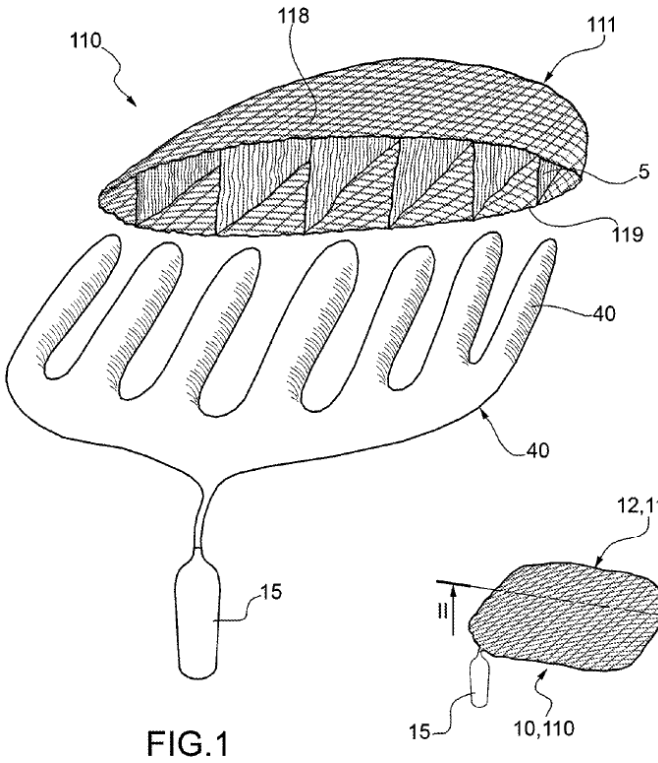


FIG.1

FIG.1A

3. Petitioners Misconstrue "Planar Structure" by Ignoring Claim Language and the Specification, and Presenting Only Half of the Position That Patent Owner Put Forward in District Court.

Petitioners propose a construction of "planar structure" that ignores its three-dimensional nature and focuses purely on its surface characteristics (which are not even required by the '065 Patent). They do so by reference to Patent Owner's Complaint in the related district court proceeding, and by focusing only on the surface of the accused product when it is inflated. Petition at 7-12.

"Planar structure" first appears in the '065 Patent's claims in the last limitation of Claim 1 (emphasis added):

…

> wherein in the inflated condition, said portions of said casing body are inflated against said first mesh portion, said second mesh portion, and said tie elements so as to form a **planar structure**.

"Structures" are three-dimensional. EX2010, ¶¶41-42. As Claim 1 recites, "planar structure" is three-dimensional because it is formed by the portions of casing body which, in the inflated state, push against the first and second mesh portions, and also against the dividing walls. *Id.* Because the dividing walls are positioned between the portions, when the portions are inflated and push against the dividing walls, the portions also push against each other. *Id.* Technologically, this means that the planar structure is a consequence of the pressing of the portions against each other to provide a continuous wall of protection that is better able to protect against energy transmission. *Id.*

In practice, the planar structure that the '065 Patent discloses, and the independent claims recite, confirms that zones of reduced thickness between two adjacent portions of inflatable casing body can be avoided or minimized. Such zones of reduced thickness would represent weak zones for protection, because they would allow more energy to be transmitted through and therefore would provide less shock protection. In contrast, by pressing the portions of casing body against each other as the independent claims recite, this enables protection against

energy transmission from a crash, and prevention of energy transmission through the protective device.

Petitioners rely only on dictionary definitions of "planar" as "flat or level." Petition at 10. Further, Petitioners agree that FIGS. 1, 2, and 3 depict "the 'globally planar structure'/'generally flat and planar final shape' [that] refers to the 'final shape of the inflatable elements [elements 12/112 comprising structure 11/111 and casing body 40]' during the inflated condition." Petition at 8. But while Petitioners focus on the dictionary definition of "planar," they fail to account for the other half of the element – "structure." Focusing only on the surface features ignores the complete claim element of "planar ***structure***."

Each of '065 Patent FIGS. 1, 2, and 3 shows a ***structure*** that lies in a plane. This is because the planarity of the recited planar structure is a consequence of the portions of the casing body entrapped in the respective channels and, when inflated, pressed against each other (through the dividing walls). Figure 2 of the '065 Patent shows how the interaction of portions of the inflated casing body portions pressed against each other and against the top and bottom mesh portions and dividing walls results in a structure that lies in a plane that runs longitudinally through the middle of the entire structure:

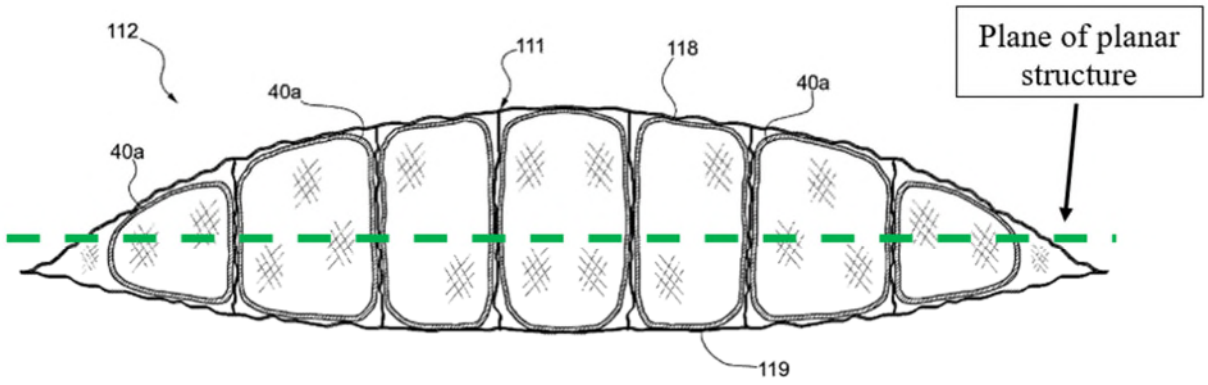
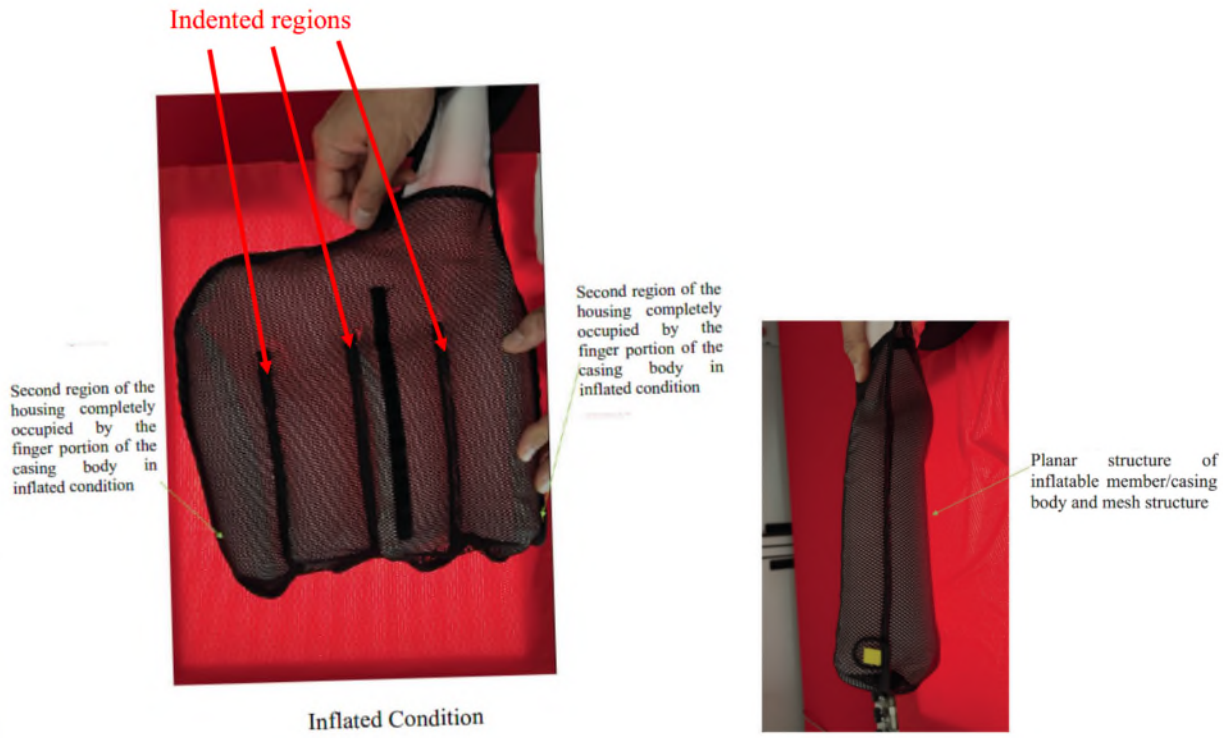


FIG.2

EX1001, FIG. 2 (annotations added). As shown above in annotated FIG. 2, the ’065 Patent teaches that the portions of the inflatable casing body push against the mesh structure and the tie members, and therefore against each other, to assume a squared cross-section in an inflated condition. In this way, the whole inflatable structure provides a continuous inflated wall that lies in a plane. *See also* EX1001, FIGS. 1, 3, 4, 5, 6, 8, and 9. Thus, the inflatable structure can maintain its casing body portions in a plane, by avoiding the creation of weak zones (which do not provide impact protection) between adjacent portions of the casing body.

Not only did Petitioners ignore the ’065 Patent’s claims and specification, they also ignored Patent Owner’s complete exegesis of “planar structure” in its District Court Complaint. In their reference to Patent Owner’s Complaint (EX1014), Petitioners failed to present to the Board Patent Owner’s depiction of

the planar structure that shows the mesh structure and inflated casing body lying in a plane that extends longitudinally through the resulting structure (see below right):



Instead, Petitioners focused on and presented only the photo (above left, Petitioners' annotations in red) that shows a view perpendicular to the plane. In the Patent Owner's district court Complaint, the photo on the left appears at the bottom of page 12, followed immediately by the photo on the right appears. EX1014, 12, 13.

Patent Owner's litigation position is entirely consistent with and supported by the specification and claims of the '065 Patent and is consistent with the plain meaning of "planar structure." Petitioner's apparent proposed construction of

"planar structure" as referring to the surface of the mesh structure with inflated casing body should be rejected.

As will be shown below, "planar structure" as disclosed and claimed in the '065 Patent renders the Asserted Prior Art non-analogous and inferior to the art that the Examiner considered.

B. Grounds 1 and 2 Should Be Rejected Because a POSITA Would Not Have Been Motivated to Combine EP'536 and CN'180, Modifying EP'536 to Utilize a Mesh Layer Would Render its Invention Inoperable, and EP'536, CN'180, and Hatton Are Inferior to the Prior Art That Was Before the Examiner.

1. A POSITA Would Not Have Been Motivated to Combine EP'536 with CN'180, With or Without Hatton.

Petitioners refer to EP'536 as an airbag. This is wrong. EP'536 is not an airbag. EP'536 describes structure that provides adaptive thermal insulation, as the reference's title clearly states. EX1004, 1 ("Envelope for a Laminar Structure Providing Adaptive Thermal Insulation"). The words "air bag" and "airbag" never appear anywhere in the reference. EX2010, ¶74. The entire reference is focused on heat protection and heat protection shields. *Id.*, ¶56, 58. A POSITA would not have considered a heat protective structure as having any relevance to air bag protection. *Id.*, ¶¶56, 58, 74, 117, 119. Petitioners' proposed modifications to EP'536 change the reference's principle of operation and make it unsuitable for its intended purpose – thermal insulation. EX2010, ¶114, 118, 126, 131. EP'536 is non-

analogous art to the ’065 Patent, making EP’536 unsuitable to establish obviousness of any of the ’065 Patent claims.

“A reference qualifies as prior art for an obviousness determination only when it is analogous to the claimed invention.” *Airbus S.A.S. v. Firepass Corporation*, 941 F.3d 1374, 1379 (Fed. Cir. 2019). EP’536 is not from the same field of endeavor as the ’065 Patent, and its opposite principle of operation makes the reference impertinent to the problem being solved. *Sanofi-Aventis Deutschland GmbH v. Mylan Pharmaceuticals Inc.*, 66 F.4th 1373, 1377 (Fed. Cir. 2023) (“Prior art is analogous if it is from the same field of endeavor or if it is reasonably pertinent to the particular problem the inventor is trying to solve.”); *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992) (“The combination of elements from non-analogous sources, in a manner that reconstructs the applicant’s invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness.”)

EP’536 also never mentions mesh. The reference mentions that layers 122, 124 in FIG. 8e may be textile, and in particular a textile with flame resistant properties. EX1004, ¶¶224-225; EX2010, ¶69. The reference never describes the textile as mesh. *Id.* Moreover, a POSITA would not have considered any flame resistant properties in order to improve air ventilation because, as is well known,

ventilation cannot be used for protecting from flame. Air ventilation is usually used to increase the intensity of a flame.

Moreover, looking at FIG. 8e in EP'536, the envelopes 20, when inflated, cannot expand sufficiently toward each other to form a planar structure, as the independent claims of the '065 Patent recite. Indeed, if those envelopes 20 did expand that much, no air gap would form between layers 124, and the device would not provide proper thermal insulation. EX2010, ¶72.

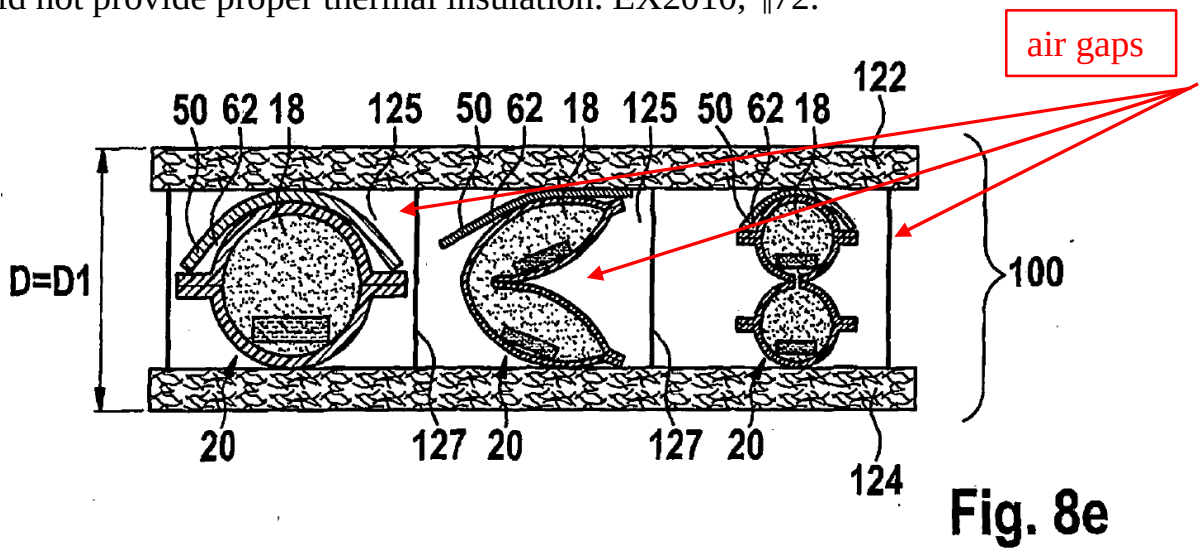


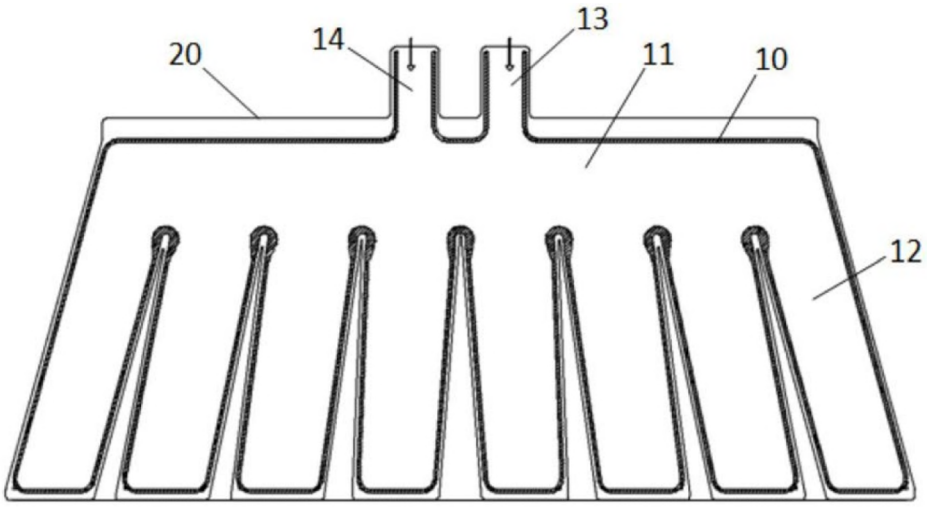
Fig. 8e

EX1004, Fig. 8e.

For these reasons alone, a POSITA would not have looked to EP'536 as a basis for invalidity of any of the claims of the '065 Patent. *Id.*, ¶¶55-76.

CN'180 does nothing to remedy the deficiencies of EP'536. CN'180 describes an inflatable belt that wraps around a wearer's waist to prevent a wearer from injury in the event of a fall. EX1005, Summary. CN'180 is not a shock absorber. EX2010, ¶¶79.

FIG. 1 of CN'180 shows strip-shaped accommodating chambers 12 in airbag 10 that extend away from each other. These chambers 12 are not parallel to each other. *Id.* That they are not parallel is sensible, as the human body is wider at the hips than at the waist, where the belt would attach. Consequently, as the shape in FIG. 1 implies, when the chambers are inflated as airbag 10 is inflated, the fingers 12 do not become parallel to each other. Actually, they diverge.



The fingers 12 cannot form a planar structure as the independent claims of the '065 Patent recite, and do not need to, because the idea behind CN'180 is to protect a wearer when falling. *Id*. Because the CN'180 fingers 12 diverge, they cannot press against each other. Moreover, CN'180 shows many intermediate zones without any inflatable portions. As a result, shock would be transmitted to the wearer, diminishing protection against energy transmission in an accident, a different goal from CN'180's goal, which is shock absorption.

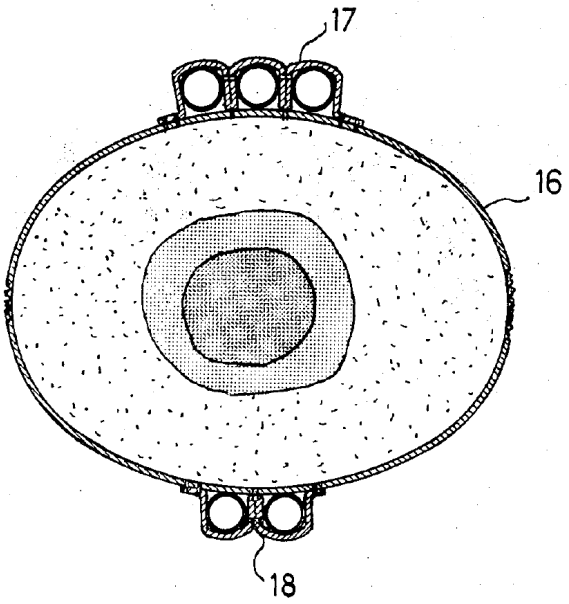
Also, like EP'536, CN'180 does not disclose mesh. *Id.*, ¶¶80, 81.

As should be clear from the foregoing, neither EP'536 nor CN'180 provides a planar structure, nor does either reference disclose mesh. *Id.*, ¶¶55-76, 79-81. Consequently, their combination lacks both of these elements, which are physically missing from the combination. Petitioner has failed to explain why it would have been obvious to combine these two references to supply these missing elements. *Id.*, ¶¶101-102, 120-121, 125-126.

Moreover, because EP'536 is not an airbag, CN'180 would not have given a POSITA any reason to treat EP'536 as an airbag. *Id.*, ¶¶82, 97-98.

Hatton, the third reference which forms part of Ground 2, is like CN'180 in that Hatton protects the legs of a wearer. EX1008. Hatton describes an orthopedic brace, as would be used for example on a wearer's leg. EX1008, 2:3-7; FIG. 2. Hatton FIG. 2 shows sections 17 and 18, with three or two tubes, respectively.

FIG. 2



Hatton states, "When the tubes are inflated they completely fill the interior space of the pipes, slightly rounding their exterior walls, and the adjoining walls stretch and become rigid." EX1008, 2:21-24.

As noted above, providing a planar structure in EP'536, like providing mesh, would change the principle of operation of EP'536 and make it inoperable for its intended purpose. Because there is no need for a planar structure in any reasonable combination of EP'536 and EP'180 – and more importantly, there is a reason ***not*** to provide a planar structure in EP'536 – a POSITA would not have looked to Hatton to supply a planar structure to that combination. EX2010, ¶¶83-85. Also, like the other two references, Hatton also fails to disclose mesh. *Id.*, ¶¶101, 106, 117. Moreover, Hatton would not have given a POSITA any reason to treat EP'536 as an airbag. *Id.*, ¶83. As a result, even combining Hatton with EP'536 and adding

CN'180 (Ground 2), the overall combination still is improper because of the inoperability of EP'536 for its intended function as a result of the modification.

Here again, common sense or ordinary creativity, which may be relevant to determining whether it would have been obvious to combine references, cannot substitute for missing elements, absent proper analysis and evidence. *Arendi S.A.R.L. v. Apple Inc.*, *supra*, 832 F.3d at 1361. Common sense "cannot be used as a wholesale substitute for reasoned analysis and evidentiary support." *Id.* at 1362. Petitioners have not provided any such analysis or evidentiary support to justify alleged presence of mesh structure, dividing walls, and planar structure in any reasonable combination of EU'536 and CN'180.

The absence of planar structure and mesh in the asserted prior art combinations constituting Grounds 1 and 2 require more than handwaving in order to apply those missing elements to those combinations, or to infer the presence of those missing elements in the combinations. EX2010, ¶¶101-102.

2. Modifying EP'536 by Replacing the Top and Bottom Layers With Mesh Prevents the Creation of an Airgap and Renders EP'536 Inoperable by Changing Its Principle of Operation.

EP'536 is directed to thermal insulation. Ventilation, which is a purpose for the structure that the independent claims of the '065 Patent recite, is the antithesis of insulation. *Id.*, ¶¶98-99, 131. Substituting mesh for EP'536's textile would change the principle of operation of EP'536, and make it no longer suitable to

provide thermal insulation. *Id.* Such frustration of purpose would render EP'536, so modified, inoperable for its intended purpose. *Id.* That kind of substitution or modification is contrary to settled law. *Adidas AG v. Nike Inc.*, 963 F.3d 1335, 1359 (Fed. Cir. 2020); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

Putting aside this fatal flaw in Petitioners' approach, for the reasons discussed above, Petitioners' prior art combinations in Grounds 1 and 2 still lack the "pushing" action of each casing body portion against the tie members, and therefore against each other, in the mesh structure and the consequent planar structure that the independent claims recite. The portions of EP'536 are far from each other (see, for example, FIGS. 8a-8e or 9a-9g of EP'536) and do not push against each other. As Patent Owner noted earlier, the portions in EP'536 are there to provide air gaps for thermal insulation. Eliminating those air gaps would impair the thermal insulation function. EX2010, ¶¶75, 97-98, 112, 117. And again, impairing the thermal insulation function would so alter the principles of operation of the EP'536 reference as to make it unsuitable for its intended purpose. EX2010, ¶¶98-99, 131. *Adidas*, *supra*; *Gordon*, *supra*.

3. Petitioners' Prior Art for Grounds 1 and 2 Does Not Even Rise to the Level That 35 U.S.C. § 325(d) Requires.

35 U.S.C. § 325(d) states that, in determining whether to institute an *inter partes* proceeding, "the Director may take into account whether, and reject the

petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office."

For the reasons detailed above, Patent Owner submits that Petitioners' Asserted Prior Art is not even as relevant as the prior art that the Examiner considered in allowing the '065 Patent to issue, so that § 325(d) need not even come into play. For the sake of completeness, however, it is worth looking at the factors which do not play directly into considering whether the prior art in the petition is "the same or substantially the same" as the prior art that the Examiner considered. Specifically, these are Factors (a), (d), (e), and (f) from *Becton Dickinson and Company v. B. Braun Melsungen AG*, IPR2017-01586, Paper No. 8, December 15, 2017 (Precedential as to § III.C.5., first paragraph).

a) Factor (a): the similarities and material differences between the asserted art and the prior art involved during examination.

Mazzarolo and Dainese '422 provide mesh, which none of the prior art in Grounds 1 and 2 provides. EX2010, ¶¶73, 80, 101, 106-107. Any differences between any of the prior art references in Grounds 1 and 2, on the one hand, and the references before the Examiner during examination, on the other, do not contribute to any greater relevance of the Grounds 1 and 2 references over the prior art of record. EX2010, ¶¶103, 141.

b) Factor (d): the extent of the overlap between the arguments made during examination and the manner in which Petitioners rely on the prior art or Patent Owner distinguishes the prior art.

As Patent Owner discussed above, Petitioners tried to recast certain claim construction arguments which the Examiner dealt with implicitly, for example, in allowing the independent claims reciting "mesh," "dividing walls," and "planar structure" over prior art more relevant that the art on which Petitioners rely. Petitioners present nothing new here.

c) Factor (e): whether Petitioners have pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art.

At the end of the Petition, Petitioners refer in passing to the Examiner's alleged "clear error," but Petitioners identify no error, and provide no reasons that the Examiner committed error. Petition at 97.

d) Factor (f): the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

For the reasons that Patent Owner has discussed, there is nothing in the Petition that warrants any kind of reconsideration of any prior art or any arguments.

Because EP'536, CN'180, and Hatton are not even as relevant as the prior art which the Examiner applied during prosecution, and because Petitioners raise no new claim construction arguments (other than to distort the claim language),

Patent Owner respectfully submits that the Board should deny institution on Grounds 1 and 2 on this basis as well.

As explained in sections III.A and III.B, Petitioners proposed claim constructions contrary to the ’065 Patent disclosure and the positions that Patent Owner advanced in the District Court proceeding, and then attempted to apply those unfounded constructions to read on EP’536, CN’180, and Hatton to invalidate the Challenged Claims. But the Asserted Prior Art, when understood in proper context, is not even as relevant as the art that the Examiner considered during prosecution of the application that led to the ’065 Patent.

4. Petitioners’ Arguments Against Independent Claim 18 Fail for At Least the Same Reasons as the Arguments Fail for Independent Claim 1.

Independent Claim 18 contains the same relevant language as independent Claim 1, insofar as the deficiencies Patent Owner has identified with respect to Claim 1 apply equally to Claim 18. The mesh structure; the dividing walls; and the planar structure in Claim 18 make Petitioner’s invalidity arguments for this claim at least as deficient as they are for Claim 1. EX2010, ¶¶42, 126, 138.

5. Petitioners’ Arguments Against the Dependent Claims Fail for At Least the Same Reasons as the Arguments Fail for the Independent Claims.

Patent Owner provides the following comments about the dependent claims, recognizing that because the independent claims are patentable over prior art, so

are the dependent claims. Patent Owner reserves the right to address the dependent claims in more detail in the event that the Board decides to grant the petition and institute an IPR proceeding.

a) Claim 3

In EP'536, if the envelopes 20 completely fill the space between the layers 122 and 124, there would be no air gap, and therefore no thermal insulative capability. For at least this additional reason, claim 3 would not have been obvious under any reasonable combination of EP'536 and CN'180, with or without Hatton. EX2010, ¶128.

b) Claim 15

The ability of air or gas to pass through the mesh structure is contrary to the principle of operation of EP'536, for the reasons stated earlier. Consequently, it would not have been obvious to modify EP'536 to provide such ability. EX2010, ¶129.

c) Claim 20

This claim effectively requires that the casing body fill the area between adjacent dividing walls and the top and bottom layers. For at least the reasons discussed above regarding EP'536's need to have an air gap in order to provide thermal insulation, no reasonable combination of EP'536 and CN'180, with or without Hatton, would meet this claim element. EX2010, ¶130.

d) Claim 21

Because EP'536 cannot have its layers be mesh (because of the need to avoid ventilation), the provision of an air passage between the first and second mesh portions would not have been obvious because such a passage would be contrary to the principle of operation of EP'536. EX2010, ¶131.

For the above reasons, the Board should deny institution on Grounds 1 and 2.

C. Ground 3 Should Be Rejected Because a POSITA Would Not Have Been Motivated to Combine EP'297 and CN'842, Which Do Not Disclose a Planar Structure and Are No Better Than the Prior Art That the Examiner Already Considered.

1. A POSITA Would Not Have Been Motivated to Combine EP'297 with CN'842 to Achieve the Inventions Claimed in the '065 Patent.

As Dr. Livernois explains, a POSITA would not have been motivated to combine EP'297 and CN'842 to achieve the inventions claimed in the '065 Patent. EX2010, ¶¶86-96, 100. This is because a POSITA would have had no reason to seek out a mesh material for the outer bag taught in EP'297 as such a material would frustrate the operation of the outer bag. *Id.*, ¶¶91, 92. Moreover, EP'297 was before the Examiner while the application for the '065 Patent was pending. The Examiner considered the reference. EX1002, 86-99. Petitioners identify no material error in the Examiner's consideration.

EP'297 is entitled "Airbag Suitable for Head Protection." EX1007 at 1. Its invention relates to a "wearable airbag for protecting a user's head." *Id.* at [0001]. Its FIGS. 1 and 2 show the airbag in deflated and inflated conditions. *Id.* at FIGS. 1 and 2. EP'297 teaches an inner bag 30 comprising a plurality of elongate first chambers. *Id.* at [0008] and FIGS. 4-6. EP'297 also teaches an outer bag 33 that "at least partially surround[s]" the inner bag 30. *Id.* at [0030]. In the deflated condition, the inner 30 and outer 33 bags are collapsed, rolled or folded up, and stored around the wearer's neck. *Id.* at FIG. 1. When a collision is detected, the inner bag 30 inflates, which in turn expands the outer bag 33. *Id.* at [0027] and [0028]. When inflated, the inner bag 30 is shaped by the outer bag 33 into a spherical helmet around the wearer's head. *See id.* at FIG. 2, [0045]. EP'297 consistently and repeatedly discloses features and aspects of an invention that must, in its inflated form, result in a spherical shape. EX2010, ¶¶86-88, 92. Considering the spherical shape, the inner bags 30, when inflated, necessarily diverge from each other and therefore without pushing against any tie members and any first mesh portion and second mesh portion.

CN'842 is entitled "A Geolocation-Based Airbag Suit for Alarming." EX1011 at 1. It teaches a "suit" (vest) constructed of mesh material and installed with an inflation device and multiple airbags positioned at the vulnerable points of a human torso (sides, neck, back, and tailbone). *Id.* at 2. The suit also includes

lattice reflective strips. *Id.* CN'842 provides no guidance as to how the multiple airbags are attached to the mesh suit, nor how the multiple airbags operate with each other. EX2010, ¶94.

"Prior art is analogous if it is from the same field of endeavor or if it is reasonably pertinent to the particular problem the inventor is trying to solve." *Sanofi*, 66 F.4th at 1377. The '065 Patent is directed to a protective device for garments while EP'297 is directed to a protective helmet. EP'297 relies on principles of structure that are opposite of those taught in the '065 Patent. Also, because of the core structural differences, the '065 Patent seeks to solve problems that is not even a consideration in EP'297. EP'297 is therefore not reasonably pertinent to the particular problems that the '065 Patent solves. As non-analogous art, EP'297 does not qualify as prior art for obviousness. *Airbus*, 941 F.3d at 1379; *Oetiker*, 977 F.2d at 1447.

Petitioners assert that combining EP'297 and CN'842 "would have merely involved the simple substitution of one known element (i.e., the mesh structures/materials of CN'842) for another (for the alleged non-meshed layers 39, 310 forming outer bag 33) to obtain predictable results (i.e., a wearable airbag system that is air permeable/breathable)." Petition at 62. This reflects not only a failure to understand the '065 Patent, but also a lack of appreciation for EP'297. A

POSITA would not have been motivated to combine EP'297 with CN'842 for two reasons, both of which relate to the core invention disclosed in EP'297.

First, EP'297 does not mention mesh, and for good reason. The inner bag 30 cannot be constructed of mesh because the bag's purpose is to be inflated and hold air. EX2010, ¶92. The outer bag 33 need not be constructed of mesh because EP'297 is not directed to solving any ventilation problems. *Id.*, ¶91. This is because, in the deflated condition, the inner 30 and outer 33 bags are rolled up and stored around the wearer's neck area and do not obstruct the wearer from breathing, nor hinder ventilation. *Id.* In the inflated condition, the inner 30 and outer 33 bags are shaped to cover and protect the wearer's head while leaving the face area open for ventilation. *Id.* Thus, regardless of whether the reference's device is in the deflated or inflated condition, EP'297 is not directed toward the problem of ventilation and has no need for mesh. *Id.* A POSITA would therefore not have sought out prior art related to mesh (such as CN'842) to combine with EP'297. *Id.*, ¶91.

Second, not only does EP'297 not call for mesh; the use of mesh to construct the outer bag 30 would frustrate its purpose and render EP'297 inoperable. EX2010, ¶92. While it is true, as Petitioners state, that the outer bag 33 "could be fluid permeable" (Petition at 60), Petitioners make the unsupportable leap to assert

that "[a] POSITA would have understood that…the outer bag 33…would be a 'mesh structure' within the meaning of the '065 Patent" (*Id.*).

The outer bag 33 of EP'297 cannot be made of mesh. *Id.* One purpose of the outer bag 33 is to define the spherical shape of the helmet when the inner bag 30 is inflated:

> **Thus, the structure of the outer bag 22 defines or sets the limit of the shape of the airbag 20 after inflation.** Furthermore, the structure of the outer bag 22 controls the movement of the airbag 20 during inflation from a non-expanded state to an expanded state. Further, the provision of the sections 23, 24, 25, 26, 27 [of the outer bag 22/33] prevents the elongate chambers 28, 29, 210, 211 [of the inner bag 21/30] from moving outside its associated section both in a non-inflated or inflated state. **Hence, the shape of the inflated airbag will be defined by the pre-arranged disposition of the sections 23, 24, 25, 26, 27 [of the outer bag 22/33] such that the inflated helmet will have a well-defined shape.**

EX1007 at [0045] (emphasis added); *see also id.*at [0032]. When the inner bag 30 is inflated, another purpose of the outer bag 33 is to remain unexpanded at strategic locations on the helmet so as to protect without blocking the wearer, such as around the ears. *Id.* at [0039] and [0044] ("protecting the user against scratches without blocking of the hearing of the user").

As explained in section III.A.1 above, the plain meaning of "mesh" refers to a textile that ensures ventilation. But textiles that satisfy the requirements to construct the outer bag 33 of EP'297 (strong enough to protect a wearer against scratches by hard substances such as concrete and strong enough to define the

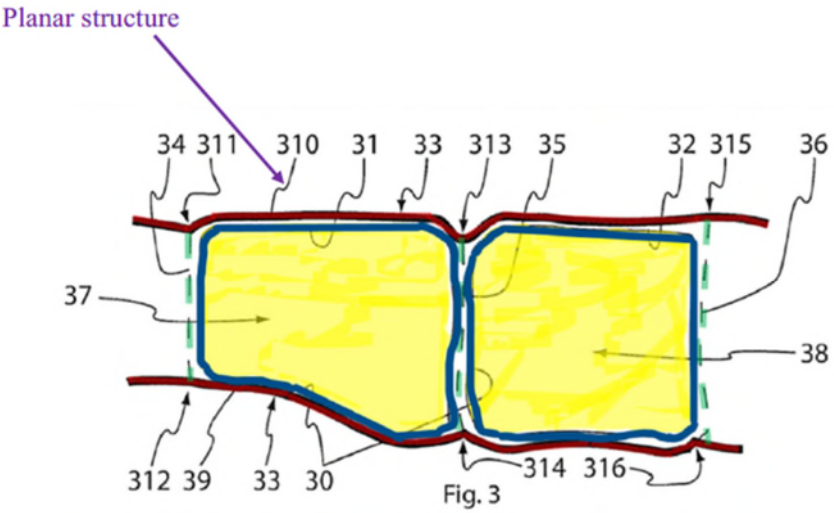
spherical shape of a helmet) do not also ensure ventilation. EX2010, ¶92. For example, EP'297 identifies polyamide, a standard airbag material, as the material used to construct the outer bag 33. EX1007 at [0031]. Polyamide does not ensure ventilation. *Id.* Moreover, using mesh to construct the outer bag 33 would frustrate the purpose of the outer bag itself and render EP'297 inoperable. *Id.* A POSITA considering the invention of EP'297 would therefore have looked to prior art that teaches ***non***-mesh materials, such as polyamide. EX1011, [0031]. A POSITA would not have looked to prior art such as CN'842 to combine with EP'297. *Id.*

Because ventilation is not a problem or concern to be solved with the invention of EP'297 and the deflated and inflated conditions of the airbag in EP'297 do not affect ventilation, and because the use of a mesh material such as that disclosed in CN'842 would frustrate the purposes of the outer bag 30 and render EP'297 inoperable, a POSITA would not have been motivated to combine EP'297 with CN'842 to achieve the inventions claimed in the '065 Patent. EX2010, ¶100. Ground 3 should therefore be rejected.

2. Neither EP'297 Nor CN'842 Discloses a Planar Structure as Required in Each of the Challenged Claims.

EP'297 and CN'842 do not disclose a "planar structure" as recited in each Challenged Claim. Neither does their combination.

Petitioners misguidedly focus on the surface of the structure created by the top and bottom mesh portions and the inflated casing body. With this inappropriately narrow focus, Petitioners then point to Figure 3 in EP'297 and argue that, "[w]hile there are indents in the structure at portions where the straps 34,35, 36 intersect the layer 310, this is a 'planar structure' under the [Patent Owner's] interpretation currently advanced in the litigation." Petition at 72. Petitioners annotated Figure 3 of EP'297 to show the alleged "planar structure":



EX1007, FIG. 3.

Petition at 73.

Again, Petitioners misread the '065 Patent (and now, additionally, Patent Owner's position) to pound the round peg of "planar structure" into the square hole of EP'297. As explained in section III.A.3 above, the "planar structure" recited in each Challenged Claim refers to a three-dimensional structure formed by the first

and second mesh portions, dividing walls, and portions of the casing body when it is inflated. *See, e.g.*, '065 Claim 1 ("wherein in the inflated condition, said portions of said casing body are inflated against said first mesh portion, said second mesh portion, and said tie elements **so as to form a planar structure**") (emphasis added). That structure is "planar" because a plane runs longitudinally through the middle of the inflated fingers of the casing body:

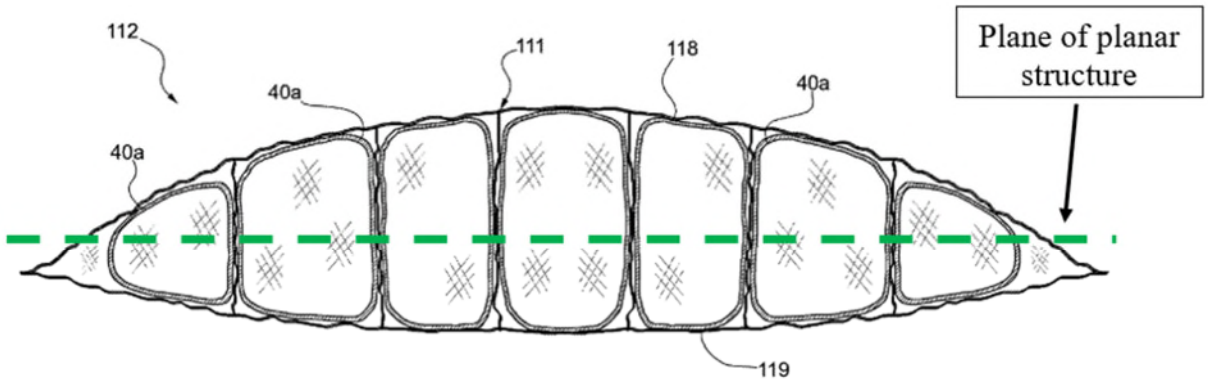


FIG.2

EX2010, ¶¶41-42.

EP'297 does not disclose any planar structure because it teaches a spherical helmet:

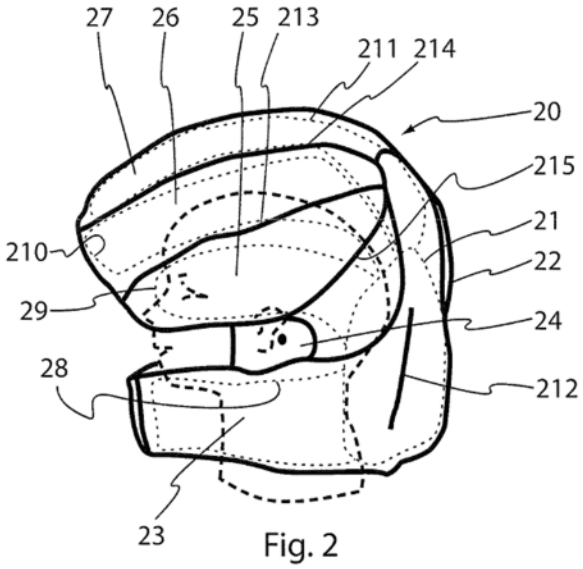


Fig. 2

EX1007 at FIG. 2; *see also id.* at [0007] ("inflation of the airbag around the user's head"), [0049] ("[F]irst chambers 43, 44, 45, 46, 47, 48 may be configured to expand on or more sections suitable for surrounding a crown part and/or forehead part of a user's head. This means that the elongate first chambers 43, 44, 45, 46, 47, 48 forms protective parts for the frontal, parietal, and temporal lobes of the skull when inflated."), and [0065] ("around the back head, and further forward around the crown"). While a couple of the elongate first chambers of EP'297 may align, the structure formed when the chambers are all inflated must take on a spherical shape rather than a "planar" structure. EX2010, ¶¶86-88. EP'297 therefore does not disclose the "planar structure" recited in each of the Challenged Claims.

Although Petitioners do not address CN'842, this reference likewise does not disclose any planar structures. EX2010, ¶94. As such, EP'297 and CN'842, the

prior art underlying Ground 3, cannot be combined in any way to teach a "planar structure."

For the above reasons, Ground 3 should be rejected because none of the prior art upon which Petitioners rely disclose the "planar structure" that each Challenged Claim recites.

3. EP'297 and CN'842 Are Not Even as Relevant as the Prior Art that the Examiner Considered.

EP'297 and CN'842, the Asserted Prior Art for Ground 3, are not even as relevant as the prior art that the Examiner considered during prosecution of the application that led to the '065 Patent's issuance. Patent Owner discusses below *Becton Dickinson* factors (a), (d), (e), and (f).

a) Factor (a): the similarities and material differences between the asserted art and the prior art involved during examination.

In a non-final rejection filed May 2, 2023, the Examiner rejected various then-pending claims based on Dainese '422 in view of Mazzarolo. EX1002, 192-201. Dainese teaches a protection device with an inflatable member that contains a first wall and a second wall. The inflatable member includes a textile structure including a first mesh and a second mesh that are connected by tie members. Mazzarolo discloses an airbag that one could wear on his or her torso, the airbag including a top layer and a bottom layer of mesh material encasing an inflatable

bag, where the two mesh material layers are connected by tie members. These two references are discussed in greater detail above in sections **Error! Reference source not found.** and **Error! Reference source not found.**.

Unlike Dainese ‘422 and Mazzarolo, EP’297 does not disclose any mesh material. EX2010, ¶106. Further, EP’297 discloses an airbag helmet, the spherical structure of which is structurally differentiable from the flat structure shown in Dainese or Mazzarolo. *Id.*, ¶108. EP’297 is therefore not as relevant as Dainese or Mazzarolo, which the Examiner already considered.

CN’842 is even more inferior than EP’297 is to Dainese and Mazzarolo. CN’842 discloses a vest constructed of mesh material with an inflation device and multiple airbags attached at strategic places on the vest. However, the reference does not teach an inflatable bag encased in mesh material. EX2010, ¶109. Because CN’842 has no disclosure about layers of mesh material, it also has no disclosure about ties connecting layers of mesh material. *Id.*, ¶107. CN’842 is therefore not as relevant as Dainese or Mazzarolo, which the Examiner already considered. *Id.*, ¶¶103-110.

b) Factor (d): the extent of the overlap between the arguments made during examination and the manner in which Petitioners rely on the prior art or Patent Owner distinguishes the prior art.

As Patent Owner discussed above, Petitioners tried to recast certain claim construction arguments which the Examiner dealt with implicitly, for example, in allowing the independent claims reciting "mesh" and "planar structure" over prior art, such as Dainese and Mazzarolo, that is more relevant than EP'297 and CN'842. Therefore, in Patent Owner's view, Petitioners present nothing new here that the Examiner did not already address.

c) Factor (e): whether Petitioners have pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art.

At the end of the Petition, Petitioners refer in passing to the Examiner's alleged "clear error," but Petitioners identify no specific error, and provide no reasons that the Examiner committed error. Petition at 97. Petitioners have not addressed factor (e).

d) Factor (f): the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

For the reasons that Patent Owner has discussed, there is nothing in the Petition that warrants any kind of reconsideration of any prior art or any arguments.

Because EP'297 and CN'842 are not even as relevant as the prior art which the Examiner applied during prosecution, and because Petitioners raise no new claim construction arguments (other than by ignoring the claim language and the specification, and misrepresenting the positions that Patent Owner put forward in the district court proceedings (see section III.A above), Patent Owner respectfully submits that the Board should also deny institution on Ground 3 on this basis as well.

4. Petitioners' Arguments Against Independent Claim 18 Fail for At Least the Same Reasons as the Arguments Fail for Independent Claim 1.

Independent Claim 18 contains the same relevant language as independent Claim 1, insofar as the deficiencies Patent Owner has identified with respect to Claim 1 apply equally to Claim 18. The mesh structure; the dividing walls; and the planar structure in Claim 18 make Petitioner's invalidity arguments for this claim at least as deficient as they are for Claim 1. EX2010, ¶136.

5. Petitioners' Arguments Against the Dependent Claims Fail for At Least the Same Reasons as the Arguments Fail for the Independent Claims.

Patent Owner provides the following comments about the dependent claims, recognizing that because the independent claims are patentable over prior art, so are the dependent claims. Patent Owner reserves the right to address the dependent

claims in more detail in the event that the Board decides to grant the petition and institute an IPR proceeding.

a) Claims 2, 4, 6, 8, 13, 15, and 16

Claims 2, 4, 6, 8, 13, 15, and 16 each expressly recite a "mesh structure." As explained above, a POSITA would seek out non-mesh materials for the outer bag 33 of EP'297 because the material would need to be strong enough to define the curved structure and shape of the helmet when the inner bag 30 is inflated. Mesh would be too flimsy to accomplish that function. Therefore, a POSITA would avoid references that taught the use of mesh material, such as CN'842. For this further reason, EP'297 alone or in combination with CN'842 do not render claims 2, 4, 6, 8, 13, 15, and 16 unpatentable.

IV. CONCLUSION

Petitioners' faulty claim construction and deficient prior art mean that Petitioners have failed to meet their burden of demonstrating that there is a reasonable likelihood that any of the Challenged Claims is unpatentable. Consequently, for the foregoing reasons, Patent Owner requests that the Board deny institution as to any of Petitioners' requested grounds.

Date: July 18, 2025

Respectfully submitted,

By: */s/ Frank L. Bernstein*
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Lead Counsel for Patent Owner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Patent Owner's Preliminary Response contains 9,627 words, in compliance with the word-count limit of 37 C.F.R. § 42.24(b)(1).

Date: July 18, 2025

Respectfully submitted,

By: */s/ Frank L. Bernstein*

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that, pursuant to 37 C.F.R. § 42.6(e), a copy of the foregoing Patent Owner's Preliminary Response is being served via email on counsel for the Petitioners as follows:

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