

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RUNWAY SAFE LLC
Petitioner,

v.

ENGINEERED ARRESTING SYSTEMS,
Patent Owner.

Case IPR2015-01921
Patent 7,597,502 B2

Before JOSIAH C. COCKS, THOMAS L. GIANNETTI, and
MICHAEL L. WOODS, *Administrative Patent Judges*.

WOODS, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Runway Safe LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–3 of U.S. Patent No. 7,597,502 (“the ’502 patent”). Pet. 3. Engineered Arresting Systems (“Patent Owner”) timely filed a Preliminary Response (Paper 8, “Prelim. Resp.”) to the Petition, contending that the Petition should be denied as to all challenged claims. Prelim. Resp. 60.

We have jurisdiction under 37 C.F.R. § 42.4(a) and 35 U.S.C. § 314, which provide that an *inter partes* review may not be instituted unless the information presented in the Petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

Having considered the arguments and the evidence presented, for the reasons described below, we decline to institute an *inter partes* review of any of the challenged claims.

A. The ’502 Patent (Ex. 1001)

The ’502 patent is titled “VEHICLE ARRESTING BLOCKS, BEDS AND METHODS.” Ex. 1001, Title. The ’502 patent “relates to arresting the forward motion of vehicles, such as aircraft overrunning a runway.” *Id.* 1:21–22.

According to the ’502 patent, the “vehicle arresting unit may include a block of compressible material, frangible material positioned above the block, [and] intermediate material positioned between the frangible material and the block” *Id.* 2:31–34.

To illustrate the Patent Owner's vehicle arresting unit, Figure 2 of the '502 patent is reproduced below:

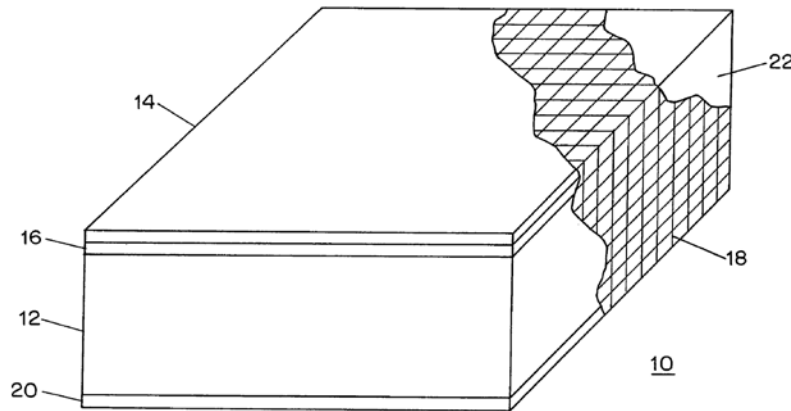


Figure 2 illustrates vehicle arresting unit 10 including block 12 of compressible material, top sheet 14 of frangible material, which may comprise a section of cement board, and intermediate material 16, which may be a sheet or layer of foam material. *Id.* 3:14–62.

B. Illustrative Claim

Claim 1 is the sole independent claim, with claims 2 and 3 depending directly from claim 1. *Id.* 6:62–8:9. Claim 1 is illustrative of the subject matter at issue and is reproduced below (with paragraphing added to help improve clarity, and with emphasis added to a particular limitation discussed in this Decision):

1. A vehicle arresting unit comprising:
 - (a) deformable material sufficient to arrest travel of a vehicle without catastrophically damaging the vehicle, the deformable material
 - (i) configured to deform upon being contacted by the vehicle to effect the arrest, and

(ii) comprising *compressible material in the form of ceramic foam* having top, bottom and side surfaces and omitting phenolic foam and cellular concrete; and

(b) frangible material positioned above the top surface, the frangible material

(i) fabricated to protect the compressible material prior to vehicle arrestment,

(ii) having a breaking strength to readily break without subverting the arrestment characteristics of the compressible material, and

(iii) comprising material different from the compressible material.

C. References Relied Upon

The Petitioner relies in relevant part on the following references:

Short Name	Reference	Ex. No.
Gwynne	Gwynne, G.M., <i>Urea Formaldehyde Foamed Plastic Emergency Arresters for Civil Aircraft</i> , C.P. No. 1329, Her Majesty's Stationary Office, January 1974.	1005
Angley '025	US 5,885,025, issued Mar. 23, 1999	1007
Brubaker '917	US 4,007,917, issued Feb. 15, 1977	1008

D. Alleged Grounds of Unpatentability

Petitioner contends that claims 1–3 of the '502 patent are unpatentable under 35 U.S.C. § 103 based on Gwynne and Brubaker '917 and, additionally, based on Angley '025 and Brubaker '917.

II. ANALYSIS

A. Claim Construction

We interpret a claim of an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see In re Cuozzo Speed Techs., LLC*, 778 F.3d 1271, 1281 (Fed. Cir. 2015), *cert. granted*, *Cuozzo Speed Techs., LLC v. Lee*, 84 U.S.L.W. 3218 (U.S. 2016). Claim terms also are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). However, a “claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer” and clearly set forth a definition of the claim term in the specification. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002).

For purpose of this decision, we have given all claim terms their ordinary and customary meaning as would be understood by a skilled artisan in light of the Specification of the ’502 patent.

B. Asserted Grounds Based on Gwynne and Brubaker ’917

1. Summary of Gwynne (Ex. 1005)

Gwynne describes examples of foam arresters that are “suitable for airfields where overrun hazards exist, for arresting aircraft safely without overstressing undercarriage units due to the foam drag loads.” Ex. 1005, 1. In particular, Gwynne describes a soft ground arrester that provides a braking force for stopping an aircraft “as the [aircraft’s] wheels either displace, or shear and crush the soft ground material as they traverse through it.” *Id.* at 3. Gwynne “deals only with *Urea Formaldehyde (UF) foamed plastic*” as the crushable soft ground material. *Id.* (emphasis added).

Gwynne also discloses that “[s]ealing and weatherproofing of the foam arrester is therefore essential to prevent damage by erosion . . . [and that the] *foam surface was sealed by coating with a PVC emulsion paint over which was placed a layer of . . . fibre glass cloth, which was also coated with two applications of the paint.*” *Id.* at 18 (emphasis added).

2. *Summary of Brubaker ’917 (Ex. 1008)*

Brubaker ’917 relates to “structures which will absorb the impact energy of a moving object [and, specifically,] directed to use of *ceramic foams* . . . as energy absorbing materials, to cover rigid members, such as highway structures.” Ex. 1008, 1:12–16 (emphasis added).

3. *Obviousness over Gwynne and Brubaker ’917*

Petitioner contends that claims 1–3 are obvious over Gwynne and Brubaker ’917. Pet. 9, 35. In addressing the limitation, “compressible material in the form of *ceramic foam*,” Petitioner acknowledges that Gwynne does not disclose ceramic foam. *Id.* at 10. Petitioner asserts, however, that “a person of ordinary skill in the art would have reason to substitute [Gwynne’s] urea formaldehyde foam for [Brubaker ’917’s] ceramic foam.” *Id.* at 16 (citing Ex. 1004 ¶¶ 42–51), 36.

In particular, Petitioner explains that Brubaker ’917’s ceramic foam is “water insoluble” and “non-absorbent to water.” *Id.* at 18 (citations omitted). Based on these teachings, Petitioner reasons that:

It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the urea formaldehyde foam layers of Gwynne with the ceramic foam of Brubaker ’917 to yield predictable results, namely, *to increase the durability and useful life of the vehicle arresting unit of Gwynne . . . [as] it was desirable to design and manufacture a vehicle arresting unit with materials that were resistant to water absorption.*

Id. (emphasis added) (citations omitted); *id.* at 20, 22.

In response to Petitioner’s proposed reasoning for modifying Gwynne, Patent Owner argues that “to the extent that urea formaldehyde posed issues regarding water absorption, Gwynne specifically addresses those issues by teaching a weatherproofing layer on the surface of the foam.” Prelim. Resp. 43. Patent Owner points out that “Gwynne describes weatherproofing the arresting bed by providing a layer of fibre glass cloth and two layers of sealant in the form of PVC emulsion paint.” *Id.* (citing Ex. 1005, 19).

Upon reviewing the record, we conclude that Petitioner has not demonstrated that the proposed modification of Gwynne—which replaces Gwynne’s urea formaldehyde foam with Brubaker ’917’s ceramic foam—is supported by adequate reasoning based on rational underpinnings. *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). In particular, Petitioner’s proposed rationale, “improvement in the water absorption resistance,” ignores the fact that Gwynne’s arrester already has a weatherproofing seal, which addresses the problem of water intrusion. Ex. 1005, 18. Additionally, Petitioner’s modification does not propose to remove Gwynne’s weatherproofing seal, but instead relies on its presence in meeting the claimed “frangible material.” Pet. 26 (citing Ex. 1004 ¶ 58). In that respect, Petitioner does not explain adequately why a skilled artisan would maintain Gwynne’s weatherproofing seal as a part of a structure while also incorporating Brubaker ’917’s water insoluble ceramic foam.

Because we are not persuaded that water intrusion is a problem in Gwynne’s arrester system, we are not persuaded by Petitioner’s proffered rationale that a person of ordinary skill in the art would replace Gwynne’s urea formaldehyde foam with ceramic foam. Accordingly, Petitioner has

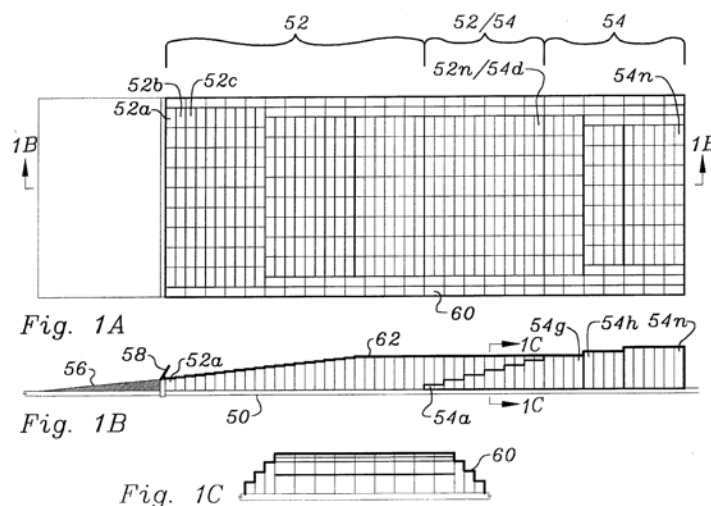
failed to establish a reasonable likelihood of success at trial on these challenges, and we, therefore, do not institute an *inter partes* review of claims 1–3 on these grounds.

C. Asserted Ground Based on Angley '025 and Brubaker '917

1. Summary of Angley '025 (Ex. 1007)

Angley '025 “relates to . . . cellular concrete arresting bed systems to safely decelerate an aircraft which runs off the end of a runway.” Ex. 1007, 1:11–14.

Figures 1A, 1B, and 1C of Angley '025 are reproduced below:



Figures 1A, 1B, and 1C collectively illustrate a “system . . . constructed of pre-cast blocks of cellular concrete . . . with intended installation at the end of an airport runway.” *Id.* at 6:37–47.

2. Obviousness over Angley '025 and Brubaker '917

Petitioner contends that claims 1–3 are obvious over Angley '025 and Brubaker '917. Pet. 38. In addressing the limitation “compressible material in the form of *ceramic foam*,” Petitioner acknowledges that Angley '025 does not disclose ceramic foam. *See id.* at 39. Petitioner asserts, however,

that a person of ordinary skill in the art would have reason to substitute Angley '025's cellular concrete for Brubaker '917's ceramic foam. *Id.* at 46 (citing Ex. 1004 ¶¶ 80–82). In particular, Petitioner explains that the substitution would address the “known problems” related to the construction of cellular concrete blocks for a vehicle arresting system as explained by Angley '025. *Id.* at 48.

In support of this argument, Petitioner cites Angley '025's disclosure that “the production of cellular concrete of appropriate characteristics and uniformity has not previously been achieved or described . . . [and that s]uch nonuniformity also results in an inability to accurately predict deceleration performance and total stopping distance.” *Id.* (citing Ex. 1007, 2:7–42). Petitioner then states, “even the construction of cellular concrete blocks disclosed as the ‘invention’ of Angley '025 ‘will inherently be relatively *time consuming and expensive*’ because of the problems obtaining uniformity ‘in its resistance to deformation.’” *Id.* at 49 (emphasis added) (citing Ex. 1007, 4:41–50, 10:66–11:1). Based on these teachings, Petitioner reasons that:

a person of ordinary skill in the art . . . would have been motivated . . . to construct the blocks of Angley '025 out of the uniform ceramic foam described in Baker '917 to solve the problems with the blocks described in Angley '025, [that is], *lack of material uniformity*.

Id. at 49–50 (emphasis added) (citations omitted).

In response, Patent Owner argues that Petitioner's motivation for modifying Angley '025 “runs completely counter to the teachings of Angley '025, as Angley '025 itself *teaches* persons skilled in the art how to achieve uniform material characteristics for cellular arresting beds.” Prelim. Resp. 53–54. Patent Owner explains that to maintain uniformity, in certain

embodiments, Angley '025 teaches arresting beds formed from pre-cast cellular concrete blocks. *Id.* at 54. Using blocks of cellular concrete permits strict quality control as well as predetermined arresting characteristics. *Id.* (citing Ex. 1007, 3:25–36, 3:47–54, 4:62–66). Patent Owner states, “[t]aking these teachings that address how to fabricate reliable and effective arresting bed formed of cellular concrete, persons of ordinary skill in the art would have had no reason to look for alternative materials.” *Id.*

At the outset, we note that both Brubaker '917 and Angley '025 were considered by the examiner during prosecution of the '502 patent. Ex. 1002, 90 (PTO-892, listing Brubaker '917), 92 (IDS Form 1449, listing Angley '025); Ex. 1001, 2 (U.S. Patent Documents).

Further, Petitioner has not presented persuasive reasoning for replacing Angley '025's pre-cast cellular concrete blocks with Brubaker '917's ceramic foam that is based on rational underpinnings. *KSR*, 550 U.S. at 418. Petitioner's proffered reasoning—to improve Angley '025's supposed non-uniformity problem—relies on Angley '025's discussion of non-uniformity that existed in *previous* cellular concrete productions. Pet. 48 (citing Ex. 1007, 2:7–42). As pointed out by Patent Owner, Angley '025's disclosure is directed to correcting this *previous* non-uniformity problem through the use of pre-cast cellular concrete blocks, which allow for strict quality control of the material uniformity. Prelim. Resp. 53–54; see *also* Ex. 1007, 4:66–5:7. Therefore, Petitioner's stated rationale for combining Brubaker '917 and Angley '025 is predicated on solving a problem already addressed by Angley '025.

As a further motivation to combine the references, Petitioner mentions that the construction of Angley '025's cellular concrete blocks “will

inherently be relatively time consuming and expensive.” Pet. 49 (citing Ex. 1007, 4:41–50, 10:66–11:1). But, Petitioner does not explain how using ceramic blocks would be either less time consuming or less expensive than Angley ’025’s cellular concrete blocks. *See id.* at 38–60.

In summary, we are not persuaded that a non-uniformity problem exists with Angley ’025’s cellular concrete system, and Petitioner has not provided adequate proof on that issue. Therefore, we are not persuaded by Petitioner’s rationale for why a person of ordinary skill in the art would have replaced Angley ’025’s cellular concrete blocks with ceramic foam. Accordingly, Petitioner has failed to establish a reasonable likelihood of success at trial on its challenges based on Angley ’025 and Brubaker ’917, and we do not institute an *inter partes* review of claims 1–3 under this ground.

III. ORDER

For the reasons given, it is

ORDERED that no *inter partes* review is instituted.

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