

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Chongqing Yanmei Technology Co., LTD

Petitioner

v.

TERVES, LLC

Patent Owner

Case No. IPR2023-00521

Patent No. 10,689,740

Issued: June 23, 2020

Application No.: 16/158,915

Filed: Oct. 12, 2018

Title: GALVANICALLY-ACTIVE IN SITU FORMED PARTICLES FOR
CONTROLLED RATE DISSOLVING TOOLS

**PETITIONER'S REPLY TO
PATENT OWNER'S RESPONSE TO PETITION**

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Statutes

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PETITIONER'S CURRENT EXHIBIT LIST

Exhibit	Short name	Description
EX1001	'740 patent	U.S. Patent 10,689,740 B2
EX1002	'653 patent	U.S. Patent 10,329,653 B2
EX1003	'653 reexamination certificate	U.S. Patent 10,329,653 C1 (REEXAMINATION CERTIFICATE)
EX1004		Claim listing of claims 1-81 of the '740 patent
EX1005	Doud '838	Doud '838 is the US Publication No. US 2015/0299838 A1. Doud '838 is the publication of US Application No. 14/689,295. The present '740 patent is a continuation-in-part of US Application No. 15/641,439 upon which the '653 patent was granted, and which in turn is a divisional of US Application No. 14/689,295.
EX1006	Xiao '271	Xiao '271 is Chinese Publication No. CN 103343271 A to Xiao et al. The supplied English Language translation will be referred to and Petition submits that this translation is accurate and certified. Further Xiao '271 was cited in Ex Parte Reexamination Request for No. 90/014,795 (Reexamination of 10,329,653). Further the USPTO reexamination examiner referred to Xiao as

		the closest prior art in the Notice of Intent to Issue a Reexamination Certificate of 3/28/2022 in the ‘795 Reexamination.
EX1007	Xu ‘185	Xu ‘185 is the US Publication No. US 2013/0299185 A1.
EX1008	‘795 reexamination request	Reexamination No. 90/014,795. Request for reexamination of 10,329,653 B2 (7/6/21).
EX1009	’795 notice	Notice of Intent to Issue a Reexam Certificate (3/28/22)
EX1010		<i>Docket Report for Magnesium Machine LLC v. Terves LLC</i> , No. 5:21-cv-01115 (W.D. Oklahoma)
EX1011		<i>Partial Docket report for Terves LLC v. Yueyang Aerospace New Materials Co. Ltd</i> , 1:19-cv-01611-DCN (N.D. Ohio)
EX1012		<i>Docket Report for Terves LLC v. Yueyang Aerospace New Materials Co. Ltd</i> . No. 22-1855 (Fed. Cir.)
EX1013		Magnesium Machine LLC v. Terves LLC., <i>Complaint for Declaratory Judgement and Non-Infringement</i> filed 11/23/21
EX1014		Terves LLC vs. Yueyang Aerospace New Materials Co., Ltd., et al., <i>Memorandum in Support of Defendant’s Motion for Summary Judgment</i> , filed 11/18/2021.

EX1015		Notice of Allowance and <i>Examiner's Reasons for Allowance</i> dated 4/02/2020 in Application 16/158,915 which issued as the '740 patent.
EX1016	Nava Declaration	Declaration under 37 CFR 1.68 of Dr. Juan C. Nava, Ph.D.
EX1017		<i>Curriculum vitae</i> of Dr. Juan C. Nava
EX1018	PTAB SOP	Patent Trial and Appeal Board, Standard Operating Procedure 2 (Revision 10). Undated.
EX1019	IPR CRS Report	Inter Partes Review of Patents: Innovation Issues, Congressional Research Services Report R44905. July 26, 2017.
EX1020	FR critical minerals	2022 Final List of Critical Minerals, 87 F.R. 37, 10381-82. February 24, 2022.
EX1021	Fripp	U.S. Patent No. 9,759,035 to Fripp et al. filed March 6, 2014
EX1022		Email chain between parties' counsel

I. BACKGROUND

The validity of originally challenged claims 76-81 of the ‘740 patent remain in dispute based on the file history of this Inter Partes Review, summarized as follows:

On January 24, 2023, Petitioner filed a Petition challenging the validity of claims 1-81. (Paper 2).

On June 5, 2023, Patent Owner submitted a Patent Owner’s preliminary response in which Patent Owner statutorily disclaimed claims 1-18 and 62, thus only claims 19-61 and 63-81 remained challenged under Petition. (Paper 7 p. 10, EX2008, EX2009).

On August 30, 2023, claims 1-18 and 62 having been disclaimed, the Board granted institution of *Inter Partes Review* of claims 19-61 and 63-81. (Paper 14 p. 31).

Within the Institution Decision, the Board indicated that for purposes of the decision, Doud ‘838 would apply as prior art against challenged claims 19-61 and 63-75 and the Board determined that the Petitioner demonstrated a reasonable likelihood that claims 19-61 and 63-75 are anticipated by Doud ‘838. (Paper 14 p. 13 and 17).

Within the Institution Decision, the Board did not apply Doud ‘838 as prior

art against claims 76-81. (Paper 14 p. 15). The Board indicated that the proper construction of claims 76-81 is an *open question* that the parties are encouraged to further address during trial. (Paper 14 p. 15).

Within the Institution Decision, the Board questioned whether Xu would render obvious claims 19-61 and 63-81. (Paper 14 p. 20) and whether Xiao and Xu would have rendered claims 19, 21, 29, 49-52, 58, 64, 76, and 77 obvious. (Paper 14 p. 25).

On November 22, 2023, the Patent Owner filed a Response to the Petition (Paper 18). The Patent Owner acknowledged that the Board's institution was granted because the Board believed certain claims (claims 19, 20-61 & 63-75) were not entitled to the earlier priority date of Doud, and therefore, Doud was anticipatory prior art. (Paper 18 p. 10). The Patent Owner explained that they believe the Board's decision hinged upon the open-ended ranges of the additives in Claim 19 that also permeated certain dependent claims. (Paper 18 p. 10).

Within the Patent Owner Response to Petition, the Patent owner submitted the Motion to Amend the remaining claims. (Paper 18 p. 11 referring to Paper 19). Petitioner's opposition to this motion to amend is addressed in a separate paper which is being filed contemporaneously with this Reply to the Patent Owner Response.

Within the Patent Owner Response to Petition, the Patent Owner alternatively

argues that claims 76-81 are patentable and *Patent Owner seeks to uphold the patentability of originally challenged claims 76-81 only*. (Paper 18 p. 11, especially footnote 3).

Therefore, Petitioner submits that, upon the filing of the Patent Owner Response to Petition (Paper 18) and the admissions made therein, a legitimate dispute remains only as to the validity of originally challenged claims 76-81.

II. SUMMARY OF REPLY

Petitioner submits that dependent claims 76-81 have questionable scope.

Claims 76-81 are anticipated over Doud ‘838 (EX1005) because claims 76-81 lack full support in the parent patent ‘653 specification (EX1002) and therefore Doud ‘838 (EX1005) still stands as prior art against claims 76-81 under 35 USC 102(a)(1).

Claims 76-81 are obvious over Xu ‘185 (EX1007).

Claims 76 and 77 are obvious over Xiao ‘271 (EX1005) in view of Xu ‘185 (EX1007).

Petitioner submits that claims 76-81 are therefore invalid and should be canceled by the Board.

III. DETAILED RESPONSE

A. Claims 76-81 have questionable scope.

35 USC 311(b) provides that the petitioner “...may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103...” (See 35 USC 311(b)). Petitioner is not asking the Board to cancel claims 76-81 on the grounds that they are invalid under 35 USC 112(b) and/or 35 USC 112(d) because this is not permitted under 311(b). However, petitioner wishes to simply point out that these claims 76-81 have questionable scope and this affects a crucial question still open to dispute in the present *Inter Partes Review*, which is whether there is support for the full scope of the claimed range limitations of claims 76-81 in the Specification of the parent. (See Petition, Paper 2 pp. 22-24; Nava Declaration EX1016 ¶¶40-44; PO Response, Paper 14 p. 15; Institution Decision, Paper 18 pp. 13-16).

Accordingly, Petitioner respectfully requests that the Board take into account the following issues related to the scope of claims 76-81, and that the Board exercise caution before reaching a determination that there is full support for the scope of the protection sought by claims 76-81 in the parent application.

1. *Claim 76-79, which depend directly or indirectly on claim 19, have questionable scope because it is unclear how much magnesium is needed before a composite is considered a dissolvable magnesium cast composite.*

Claim 76 recites the terms “dissolvable magnesium cast composite” and “magnesium composite” is recited in parent claim 19. It is unclear what concentration of magnesium is required for the additive material containing composite to be considered a “dissolvable magnesium cast composite” or “magnesium composite” within the meaning of the claim. The term “magnesium cast composite” or “magnesium composite” could possibly mean that the composite material is over 50% magnesium. However, when read in light of the specification it is not reasonable to conclude that such a concentration is a requirement in claim 76. ‘740 discloses that “[n]on-limiting magnesium composites in accordance with the present invention include at least 50 wt. % magnesium.” (See EX1001 p. 8; ‘740 col. 2 lines 54-56, emphasis added). Since the composition of having greater than 50 wt. % of magnesium is a *non-limiting example* of the magnesium composite in accordance with the present invention, it is not clear what concentration of magnesium is required before a magnesium containing composite would fall within the scope of the protection sought by claim 76. There is no lower boundary of magnesium recited in the claim, and the specification does not provide further clarification because having greater than 50 wt. % is only a non-limiting example. Additionally, because claims 27 and 28 of the ‘740 patent each add as their only limitation the concentration of magnesium is at least 50 wt. %, this implies that the scope of claim 19 is not limited to having a minimum amount of magnesium of, for

example, greater than 50 wt. %.

Furthermore, claim 76 does not imply a clear lower limit of magnesium concentration because the claim recites that there can be *one or more metals* selected from Cu, Ni, and Co, with upper concentration ranges of 35 wt. %, 35 wt %, and 20 wt %. So if all the additive metals were present in their maximum concentrations, then there would be 90% additives (35% + 35 + 20%), which suggests that claim 76 literally covers a composite with a 10 wt % magnesium as being within the scope of the claim. In light of the Specification though, there is no clear indication where the minimum concentration for magnesium in the magnesium composite should be drawn because the specification provides that having greater than 50 wt % magnesium is “non-limiting” and there is no other standard for determining whether any given composite having a certain concentration of magnesium below 50 wt % would constitute a “dissolvable magnesium cast composite” or “magnesium composite” within the meaning of the claim.

Therefore, the scope of claim 76 is questionable because it is not clear what minimum concentration of magnesium is required for the composite to be considered a “magnesium cast composite” or “magnesium composite” within the meaning of the claims.

Claims 77-79 have questionable scope for analogous reasons as claim 76.

2. *Claims 80-81 have questionable scope because the range of additives provided in claims 80 and 81 exceeds the scope of the additives implied by a parent claim.*

Claim 80 depends on claim 27 and claim 81 depends on claim 28. Each of claims 27 and 28 recite the limitation "... wherein said magnesium composite includes at least 50 wt. % magnesium." Then each of claims 80 and 81 recite the further limitation of "... wherein said additive material includes *one or more metal materials* selected from the group consisting of 0.1-35 wt. % copper, 0.1-24.5 wt. % nickel and 0.1-20 wt. % cobalt." (emphasis added).

Since the claim can include *more than one* of the enumerated metal materials, the new limitations of claims 80 and 81 literally cover additives in a range up to 79.5% (35% Cu +24.5% Ni +20% Co), which exceeds the scope of the parent claims 27 and 28 respectively.

Accordingly, claims 80 and 81 have questionable scope because it is not clear what the upper limit of the additive material is in the dissolvable magnesium cast composite.

B. Dependent claims 76-81 are not supported by the disclosure of the parent patent '653 (EX1002) and therefore Doud '838 (EX1005) stands as prior art under 35 USC 102(a)(1) and anticipates claims 76-81.

1. *Claims 76-81 are not supported by the disclosure of the parent patent '653 and therefore have a U.S. filing date of 10/12/2018*

Beginning on page 9 of the institution decision (Paper 14 p. 9), the Board explains that:

One may demonstrate entitlement to an earlier priority date by showing that an earlier priority application provides written description support for the claims. *PowerOasis*, 522 F.3d at 1306. This written description requirement serves an important purpose “[i]n a patent system which allows claim amendments and continuation applications long after an initial application is filed,” it ensures “that the patent owner may only exclude others from what they had actually invented as of the priority date.” *Columbia Insurance Co. v. Simpson Strong-Tie Co., Inc.*, No. 2021-2145, 2023 WL 2733427, at *3 (Fed. Cir. Mar. 31, 2023) (non-precedential).

“To satisfy the written description requirement the disclosure of the prior application must ‘convey with reasonable clarity to those skilled in the art that, as of the filing date sought, the inventor was in possession of the invention.’” *PowerOasis*, 522 F.3d at 1306 (quoting *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991)) (internal marks omitted). One may show that it was in possession of the invention through “such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.” *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). “Although the exact terms need not be used *in haec verba*, . . . the specification must contain an equivalent description of

the claimed subject matter. A description which renders obvious the invention for which an earlier filing date is sought is not sufficient.” Id.

Regarding claims 76-81, the Board alleges that there is “no dispute that Doud provides written description support for the recited levels of copper, nickel, and cobalt in claims 76-81, and the claims may not literally read on a composition having levels of copper, nickel, and cobalt” that are outside of the recited ranges; so the Board determines not to apply Doud as prior art to original claims 76-81. (See Institution Decision, Paper 14 p. 15).

In response, Petitioner respectfully disagrees that there is “no dispute” regarding whether Doud ‘838 provides written description support for claims 76-81, upon which the Patent Owner substantially bases their Patent Owner’s Response to the Petition (Patent Owner Response, Paper 18 p. 14-16, *citing to* Paper 14, p. 15). Although there might be written description support for the *individual ranges* having a maximum value of 35 wt. % of Cu or Ni and 20 wt. % of Co in the disclosure of the parent ‘653 patent application, there is no support for the combination of *more additives than one* as presently claimed in claim 76-81 because the combination of the *more additives than one* at their upper range values would exceed the scope of the written description support provided for the additives in the 653 patent.

Neither the Board in the institution decision (Paper 14) nor the Patent Owner in the Patent Owner’s Response to Petition (Paper 18) explain how there can be

proper support in the manner required by 112(a) in the parent '653 Patent for *more than one of the additives* in amounts which will exceed 45 wt. % or 50 wt. % in the claimed magnesium composite in the '740 patent claims 76-81. Each of claims 76-81 recites the limitation "...wherein said additive material includes one or more metal materials selected from the group consisting of 0.1-35 wt. % copper, 0.1-24.5 wt % nickel, and 0.1-20 wt % cobalt." This limitation includes in its scope that when more than one of copper, nickel, and cobalt are used together the scope of the additive content covered by the claim, the amount of additive can be over 50%, for example up to 79.5%, or between 35-50%, or between 45 wt. % and between 49.5 or between 45 wt. % and 50 wt. %.

However, parent patent, US Patent No. 10,329,653 (EX1002), does not disclose a concentration of additives over 50%, or that the concentration of additives covers a range between 35-50%, or that the concentration of additives is between 45 wt % and 49.5 wt. %, or between 45 wt. % and 50 wt. %, when the additives are limited to one or more of Cu, Ni, or Co. In claim 1 of the '653 patent, the range for the additives is given as 0.05 wt %-45 wt % for the total concentration of the additives, and when the additives may be one or more of Cu, Ni, Fe, and Co. (See EX1002 pp. 16-19; '653 Patent, claims 1, 12, 41, and 49). There is simply no disclosure in '653 of additive amounts of between 45-50 wt. % or between 45-49.5 wt. % of the composite. And there is no disclosure in the '653 of the additives being

over 35 wt. % when the available additives do not include iron (Fe) as part of the exclusively enumerated list. In fact, the range of total additives in the composite in the '740 patent *was expanded versus the specification in the '653 patent* by changing the disclosed total additive upper end point to include 49.5 wt. %. See Patent Owner's Redline from '653 patent to '740 patent (See EX2019 p. 6).

With respect to claims 80 and 81, which depend on parent claims 27 and 28 that each provide for a greater than 50 wt. % magnesium in the composite, the ranges of the *more than one* additive recited in claims 80 and 81 still covers a range of additive material between 45% and 49.5% or between 45% and 49.5 %. Accordingly, these claims 80 and 81, albeit depending on claims 27 and 28 which could be considered to set an implied maximum additive concentration of 50%, still cover an additive range above 45% which is not supported in the disclosure of the '653 patent.

Therefore, claims 76-81 do not have support in the manner required by 35 USC 112(a) in the parent disclosure of the '653 patent and so these claims are not entitled to an earlier filing date of the parent application. Claims 76-81 can only have written description support in the manner required by 35 USC 112(a) as early as the filing date of the application U.S. SN 16/158,915, filed October 12, 2018, and which issued as U.S. Patent No. 10,689,740 B2.

Therefore, the filing date of claims 76-81 is 10/12/2018.

2. Claims 76-81 read on embodiments disclosed in Doud ‘838 (EX 1005).

Because there is no dispute that claims 19, 29, 22, 23, 27, and 28 of the ‘740 patent, which are the parent claims of claims 76-81, are unpatentable over Doud ‘838, only the limitations recited in claims 76-81 are addressed below. This claim mapping is reiterated from the Petition. (Paper 2 p. 45).

The limitations of 76-81 are met by embodiments disclosed in Doud as follows (See also Paper 2 p. 45):

Claims 76-81	Doud ‘838
[76-81]	Doud ‘838 [0045] the magnesium content in the AZ91D magnesium alloy is 90 wt% and nickel at 7 wt%. Doud ‘838 [0046] the magnesium content in the AZ91D magnesium alloy is 90 wt% and nickel 1 wt%. Doud ‘838 [0047] the magnesium content in the AZ91D magnesium alloy is 90 wt% and copper at 10 wt%.

Accordingly, Petitioner submits that claims 76-81, having U.S. Filing date of 10/12/2018, are anticipated by Doud ‘838 (EX1005) and therefore are invalid and should be canceled by the Board.

C. Dependent claims 76-81 are obvious under 35 USC 103 over Xu ‘185 (EX1007).

1. *Xu ‘185 teaches a magnesium cast composite; and it would have been obvious to apply the teachings of Xu to a magnesium cast composite.*

Beginning on page 19 of the Patent Owner Response (Paper 18 p. 19), the Patent Owner suggests that the limitations of the “cast composite” has not been met because Xu ‘185 allegedly teaches away. In response, the petition (Paper 2) was supplied with an expert opinion (EX1016), wherein paragraphs 50-55 the expert provides his opinion that Xu discloses embodiments which *fall within the scope of the ‘740 patent claims 76-81*. The patent owner has failed to explain why the findings of the Expert are not correct. And the Patent Owner has failed to produce any expert evidence to the contrary that Xu does not disclose embodiments that fall within the scope of the ‘740 patent claims 76-81.

Moreover, Xu ‘185 acknowledges that the use of a casting process is known in the art (EX1007, p.27, paragraph 59), and further Xu ‘185 suggests that the product can be made by sintering, or forging (EX1007, p. 24, paragraph 43 and 59). In the same passage in paragraph [0059] in Xu where the patent owner believes Xu teaches away, Xu also suggests against “metallurgically processing a powder”. See EX1007, page 27, paragraph 59. However, *sintering*, which is used in Xu, is a

powder metallurgical process. The operative statement in paragraph [0059] is the “without the cellular nanomatrix” and a person having ordinary skill would have been able to extend the teachings of Xu ‘185 from sintering or forging to a casting process. As a further example of the knowledge of those having skill in the art U.S. Patent No. 9,759,035 to Fripp et al. (EX1021) discusses that casting, forging, and sintering are all well-known manufacturing techniques, and a POSITA would have immediately envisaged that casting could be used instead of sintering in Xu. (See EX1021 col. 10 lines 1-5).

2. *Based on the evidence currently of record, the claimed dissolution rate is met by the prior art Xu ‘185.*

Beginning on page 22 of the Patent Owner Response to Petition (Paper 18 p. 22-24), the patent owner argues that the specific dissolution rate parameters that are used in Xu are different from those recited in the claim. However, the dissolution rate here is a physical property being recited in a claim directed to a product. It is well understood that a property of a material may, in fact, be present even if a reference disclosing the material is silent as to the property. *Atlas Powder Co. v. IRECO Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999). To further support the conclusion of obviousness argued in the Petition, the Nava declaration (See EX1016 paragraphs 50-55) is provided. The patent owner is relying only on attorney argument and the fact that the Xu reference is silent as to the dissolution rate under the parameters

recited in the claim. The Patent owner has failed to provide any evidence show that the property would not be met by the prior art in Xu ‘185. Accordingly, Petitioner submits that there is sufficient evidence to conclude that the property is present.

Accordingly, claims 76-81 are obvious under 35 USC 103 over Xu ‘185.

D. Dependent claims 76 and 77 are obvious under 35 USC 103 over Xiao ‘271 in view of Xu ‘185.

Beginning on page 24 of the Patent Owner Response to Petition (Paper 18 p. 24-27), the Patent owner suggests that it is not obvious to combine the teachings of Xiao and Xu. (Paper 18 p. 25). The Patent Owner cites to the Institution Decision, where the Board determined that there is still a question as to why one of ordinary skill in the art seeking to from a magnesium cast composite would have looked to particle sizes in a reference directed to sintered magnesium powder composites. (Paper 18 pp. 24-25; Institution Decision, Paper 14 pp. 24-25).

In response, the Patent Owner is reading too much into the determination of the Board in the Institution Decision. The Board does not conclude that claims 76 and 77 are patentable over Xiao ‘271 in view of Xu ‘185. Instead, the Board leaves it as an *open question* why one of ordinary skill would have sought to combine the teachings of the Xiao ‘271 and Xu ‘185 references.

Petitioner has supplied a declaration of Dr. Nava (EX1016) along with and in support of the conclusions reached in the Petition. Dr. Nava provides evidentiary

support to the conclusion that it would have been obvious to combine the teachings of Xiao ‘271 with Xu ‘185 (See Nava Declaration, EX1016 ¶¶ 75-80). Dr. Nava goes into detail expressing his expert opinion on why one having skill in the art would have applied the teachings of Xu ‘185 which is “... to achieve the predictable result of strengthening the metal composite of Xiao ‘271”. (See Nava Declaration, EX1016 ¶¶ 76 and 77). This is contrary to the Patent Owner’s attorney’s argument that Petitioner presented “... *no evidence whatsoever suggesting a rationale or motivation to combine these references.*” (See Patent Owner Response to Petition, Paper 18. P. 25, emphasis in original).

In light of *KSR v. Teleflex*, there is no longer a requirement that a teaching, suggestion, or motivation (TSM) must be found expressly in any of the references, instead the Court in *KSR* identified a number of additional rationales that can support a conclusion of obviousness so long as the combination produces predictable results with a reasonable expectation of success. See *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-421 (2007). Here the rationale for combining the references is found in the ability of adjusting the size of the particles to result in a strengthening of the metal composite of Xiao ‘271 as taught by Xu ‘185 which relies on teachings of the Xu ‘185 reference (See Xu ‘185, EX1007 [0038]) and which is confirmed by the Nava Declaration. (See Petition, Paper 2 pp. 66-67; and Nava Declaration, EX1016 ¶¶ 76 and 77).

The Patent Owner has supplied no expert declaration evidence to contradict the determination of Dr. Nava. The Patent Owner's response to the Petition rests only on an overly favorable interpretation of the Board's analysis of Xiao '271 in view of Xu '185 made in the institution decision and attorney arguments unsupported by evidence.

Accordingly, Petitioner submits that claims 76 and 77 are obvious under 35 USC 103 over Xiao '271 in combination with the teachings of Xu '185 for the reasons given in the original Petition and supported by the Nava declaration.

IV. Conclusion

For the reasons given above, Petitioner requests that the Board:

A. Confirm the cancellation of claims 19-61 and 63-75.

Because these claims were challenged in the original Petition (Paper 2), because the Board reached a determination in the Institution decision that Petitioner demonstrated a reasonable likelihood that claims 19-61 and 63-75 are unpatentable (Institution Decision, Paper 14 p. 17), and because the Patent Owner seeks only to uphold the patentability of claims 76-81 (See PO Response to Petition, Paper 18 p. 11, especially footnote 3) and has presented no arguments regarding the patentability of claims 19-61 and 63-75 claims 19-61 and 63-75 should be canceled. And, in addition Petitioner requests that the Board:

- B. Reach a determination that claims 76-81 are unpatentable as being anticipated under 35 USC 102 over Doud '838 and are therefore canceled; and/or
- C. Reach a determination that claims 76-81 are unpatentable as being obvious under 35 USC 103 over Xu '185 and are therefore canceled; and/or
- D. Reach a determination that claims 76 and 77 are obvious under 35 USC 103 over Xiao '271 in view of Xu '185 and are therefore canceled.

Respectfully Submitted,
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Date: 2/14/2024

CERTIFICATE OF SERVICE

Under 37 CFR 42.6(E), the undersigned certifies that on February 14, 2024, a copy of the foregoing Petitioner's Reply to Patent Owner's Response to Petition and all associated exhibits was served by E-mail on the Lead and Back-up Counsel for the Patent Owner:

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CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME
REQUIREMENTS UNDER 37 CFR 42.24

Under 37 CFR 42.24(d), the undersigned certifies that this Petitioner's Reply to Patent Owner's Response to Petition complies with the type-volume requirements of 37 CFR 42.24(c)(1) because it contains 4,062 words, excluding the parts of the Reply exempted by 37 CFR 42.24(c).

This Reply also complies with the typeface requirements of 37 CFR 42.6(a)(2)(ii) and type-style requirements of 37 CFR 42.6(a)(2)(iii) and (iv).

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