

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CULTEC, INC.,
Petitioner
v.

STORMTECH LLC,
Patent Owner

Case IPR2017-00526
Patent 8,672,583

**Patent Owner's Preliminary Response
to Petition for *Inter Partes* Review
of U.S. Patent No. 8,672,583**

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I. Preliminary Statement

The Board should deny institution of the petition because it was filed one year and one day after Petitioner Cultec, Inc., was served with a complaint of infringement. If the Board reaches the merits of the matter, however, it will find its substance similarly deficient.

Within its muddled, redundant grounds, the petition fails to formulate a complete explanation as to how and why the cited references disclose sub-corrugations terminating below the chamber top. And two of the three references on which the petition relies cannot be used to render the claims of U.S. Patent No. 8,672,583 (“the ’583 patent”) (Ex. 1001) obvious: U.S. Patent No. 6,497,333 to Ellis et al. (“*Ellis*”) (Ex. 1004), used in Grounds 3 and 4, is not analogous art, and U.S. Patent No. 8,491,224 to Cobb et al. (“*Cobb*”) (Ex. 1002), relied on in all grounds, includes a priority date that falls after the inventors’ actual reduction to practice of the invention recited in claims 1-7, 9, 11, 13, 15, 16, and 19-21. For at least these reasons, the Board should deny institution of Grounds 1-4.

Even if the Board disagrees with all of Patent Owner StormTech LLC’s arguments, it should only institute a single ground, because Petitioner’s proposed grounds are redundant and Petitioner does not explain why its case warrants such redundancy.

II. The Petition Is Time-Barred from Institution

As previously briefed in StormTech's opposition to changing the petition filing date, the Board cannot institute inter partes review ("IPR") because the America Invents Act ("AIA") bars it. 35 U.S.C. § 315(b); *see* Paper 11. The statutory scheme sets forth strict requirements, including timely filing and payment of fees within a one-year deadline, that serve as an absolute bar to the Board's consideration of IPR petitions. *See* 35 U.S.C. §§ 315(b), 312(a)(1). Importantly, none of these provisions allow for the untimely filing of a petition under the circumstances at issue in Petitioner's motion.

Neither party disputes that Petitioner was served with a complaint of infringement of the '583 patent on January 5, 2016, and that it did not file its petition until January 6, 2017, more than one year later. Petitioner provides a number of excuses for its untimely filing. These excuses, however, amount to Petitioner unreasonably waiting until the very last minute to file its petition, ignoring standard fee payment procedures and warnings from the Patent Office's Financial Manager, repeatedly attempting to pay by credit card despite the warnings, and inexplicably delaying for hours (after having received the warnings) on the last day possible to file its petition. Paper 9, ¶¶ 5-9, 12; Ex. 2003. Petitioner knowingly waited until the last day to file its petition, accepting the risk of an untimely filing.

A. The AIA Makes No Exceptions for Petitioner’s Tardy, Last-Minute Filing Attempts

Sections 315(b) and 312(a)(1) expressly set forth Congress’s intent to limit availability of IPR proceedings to petitioners that timely file *and pay* the required fees, which Petitioner failed to do. The plain language of § 312(a)(1) states that the Board may consider a petition “only if” the fees are paid. 35 U.S.C. § 312(a)(1). Section 315(b) imposes a strict one-year deadline for this to occur. 35 U.S.C. § 315(b). Had Congress intended to allow waiver or suspension of these statutory requirements for tardy, eleventh-hour filers like Petitioner, it would have done so. *Compare* 35 U.S.C. §§ 315(b), 312(a)(1), *with* § 316(a)(11). But it did not. Congress, therefore, did not envision allowances for late-filed IPR petitions like Petitioner’s. *See, e.g., Russello v. United States*, 464 U.S. 16, 23 (1983) (“[W]here Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion.” (alteration in original) (quoting *United States v. Wong Kim Bo*, 472 F.2d 720, 722 (5th Cir. 1972))); *Genetics & IVF Inst. v. Kappos*, 801 F. Supp. 2d 497, 506 (E.D. Va. 2011). Therefore, canonical statutory interpretation dictates that the AIA provides no relief for late petition filings.

And the Board lacks the authority to contravene the statute. It is “well established that the absence of a statutory prohibition cannot be the source of

agency authority.” *FAG Italia S.p.A. v. United States*, 291 F.3d 806, 816 (Fed. Cir. 2002). While §§ 315 and 312 may not expressly state that the Patent Office cannot waive or suspend timely filing and payment in this instance, the statutes do not amount to a grant of agency authority to excuse Petitioner’s dilatory filing. *See id.* And however broad an agency’s discretion in implementing a scheme may be, the agency may not “wholly ignore other and equally important Congressional objectives.” *Cnty. Television of S. Cal. v. Gottfried*, 459 U.S. 498, 516 (1983) (quoting *S. S.S. Co. v. NLRB*, 316 U.S. 31, 47 (1942)). The history of the AIA and § 315 indicates an intention to provide defendants with time to analyze patent claims, not to create an unbounded process that excuses dilatory filings. *See, e.g.*, 157 Cong. Rec. S5429 (daily ed. Sept. 8, 2011) (statement of Sen. Kyl). Accordingly, the Patent Office may not waive or suspend timely filing and payment requirements for Petitioner in this instance.

The regulations are consistent with the statutes on this point. According to 37 C.F.R. § 42.106, a petition will not be accorded a date until fees are paid, and § 42.103(b) states that “[n]o filing date will be accorded . . . until full payment is received.” Additionally, the Board has understood these provisions as not allowing for waiver or suspension when the late filing “was created by Petitioner’s own delay,” as is the case here. *Teva Pharm. USA, Inc. v. MonoSol Rx, LLC*, IPR2016-00281, Paper 21 at 13 (P.T.A.B. May 23, 2016). Nothing prevented Petitioner from

filing hours or days before the deadline so that it could call the Patent Office to rectify its own misunderstanding of filing procedures. Nor did anything prevent Petitioner from properly following PTAB payment instructions in the first place. Nothing in the regulations provides special treatment for eleventh-hour filers like Petitioner, who knew for more than a year about the filing deadline but still waited until the very last moment to file.

An agency may excuse its own rules or deadlines in *certain* instances, *see* 37 C.F.R. § 42.5(b), but this is not such an instance. In fact, the opposite is true when Congress has imposed a deadline. “Neither courts nor administrative agencies . . . have the authority to waive requirements (including filing deadlines) that Congress has imposed” *Schoemakers v. OPM*, 180 F.3d 1377, 1382 (Fed. Cir. 1999); *see also Donaldson v. OPM*, 171 F. App’x 342, 344 (Fed. Cir. 2006). Here, timely payment of fees is a “statutory requirement[.]” *Terremark N. Am. LLC v. Joao Control & Monitoring Sys., LLC*, IPR2015-01482, Paper 10 at 7 (P.T.A.B. Dec. 28, 2015). While the Board may have discretion to waive “non-statutory” requirements, *id.*, the same is not true for the express requirements in §§ 315(b) and 312(a)(1). The statutory scheme does not allow for changing the filing date of Petitioner’s petition under the circumstances of this case.

B. The Board Has Rejected Arguments Similar to Petitioner's in the Past

The Board requires petitioners to drop challenges to claims for which fees are not timely paid. *Alarm.com Inc. v. Vivint, Inc.*, IPR2016-01126, Paper 13 at 4-5 (P.T.A.B. July 28, 2016); *FLIR Sys., Inc. v. Leak Surveys, Inc.*, IPR2015-00065, Paper 25 at 8-9 (P.T.A.B. Feb. 25, 2015). In *Alarm.com* and *FLIR*, the Board would not allow petitioners to maintain a filing date without dropping challenges to claims for which fees were not paid. Here, even if Petitioner's service on January 5, 2017, could somehow qualify for a filing date, Petitioner paid no fees until the following day. Thus, Petitioner would have to withdraw its challenges to all claims to maintain that "filing date," leaving no grounds to institute.

Further, a filing date is not accorded until all statutory filing requirements are met, including timely payment of fees. *Terremark*, IPR2015-01482, Paper 10 at 7-9; *Teva*, IPR2016-00281, Paper 21 at 8-9; *Plaid Techs., Inc. v. Yodlee, Inc.*, IPR2016-00275, Paper 15 at 5 (P.T.A.B. June 9, 2016). The acknowledgment provided to Cultec by the Board's system showing Cultec's filing date as the January 6, 2017, date of payment is completely consistent with this regulatory rule. *See* Paper 6; Ex. 1015. Although Petitioner served Patent Owner on January 5, 2017, as discussed above, Petitioner failed to pay fees or complete filing with the Board until the following day. Petitioner's unexplained action of waiting until after business hours to file—on the last possible day—is a garden variety situation that

the case law routinely finds inexcusable. *See, e.g., Teva*, IPR2016-00281, Paper 21 at 9-10 (“Petitioner does not . . . persuasively explain why it waited to upload and file . . . with little more than two hours remaining before the statutory bar date.”). Petitioner does not even attempt to distinguish these cases. And changing the filing date in this instance would run contrary to Board decisions in similar situations. *See, e.g., Terremark*, IPR2015-01482, Paper 10; *Teva*, IPR2016-00281, Paper 21; *Plaid Techs.*, IPR2016-00275, Paper 15. The decisions that Petitioner identifies as allegedly supporting its request for forgiveness for missing the filing deadline do not apply here. *See* Paper 8 at 6-7. In those cases, the filing system malfunctioned, the petitioner inadvertently caused a deficiency, or the relief requested did not involve changing a filing date to before payment of fees. In *Oracle Corp. v. MAZ Encryption Technologies LLC*, for example, the PTAB filing system malfunctioned and caused the late filing. IPR2014-00472, Paper 9 at 2 (P.T.A.B. May 1, 2014). Petitioner has not demonstrated that the system malfunctioned or caused delays. In fact, Petitioner itself caused unnecessary delays by abandoning efforts to properly file for four hours (between 7 p.m. and 11 p.m.), while the system was providing the following warning: “**Your Payment Has Not Been Cleared . . .**” Ex. 1014.

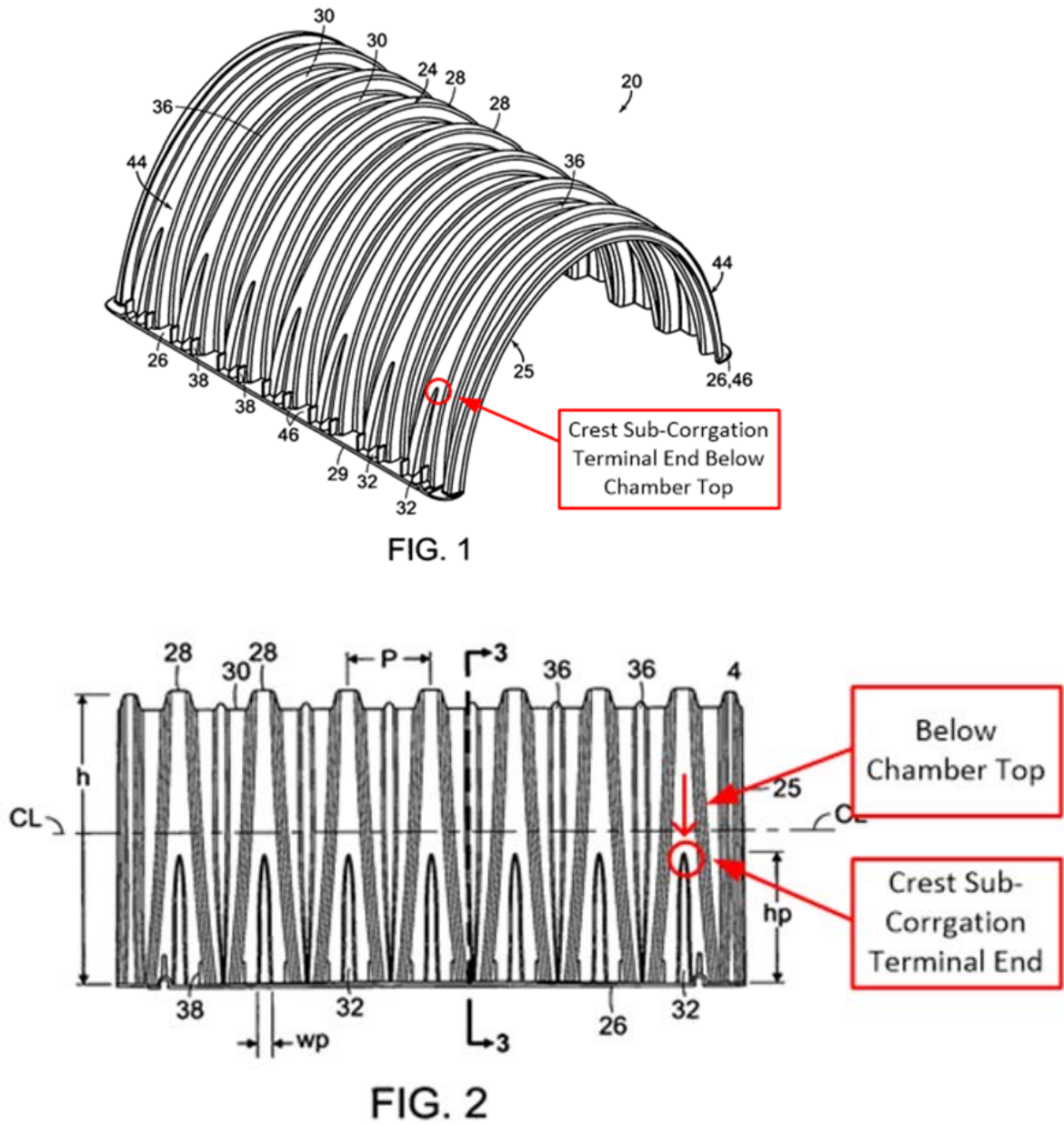
Moreover, Petitioner’s knowledge of its defective filing attempts and failure to follow published backup procedures (*see* Ex. 2003 at 1-2 (item A2)) make Petitioner’s situation different than cases where the petitioner did not know of the

filing deficiencies, *see, e.g., ABB Inc. v. Roy-G-Biv Corp.*, IPR2013-00063, Paper 21 at 5-6 (P.T.A.B. Jan. 16, 2013) (where the Board maintained a petition filing date when the petitioner *mistakenly* filed the incorrect exhibits). Here, Petitioner received clear warnings regarding its unsuccessful attempts to pay by credit card, yet Petitioner knowingly attempted to pay again in the same, ineffective manner. Thus, the cases Petitioner relies on do not support its position.

The Board cannot and should not change the petition filing date. Accordingly, because the filing date of the petition was more than one year after Petitioner was served with a complaint asserting patent infringement of the '583 patent, the AIA bars institution of IPR. 35 U.S.C. § 315(b).

III. The Board Should Deny Institution of Grounds 1-4

IPR should not be instituted for the simple reason that none of the references or combination of references identified in the petition disclose or suggest “each crest sub-corrugation terminating at an elevation lower than the top of the chamber,” a required feature of independent claims 1, 14, and 19-21. Ex. 1001 at 13:42-44, 14:58-60, 15:34-35, 16:11-12, 16:36-38. An example of this feature is shown in Figures 1 and 2 of the '583 patent (reproduced below with annotations). *See, e.g., id.* at 3:38-47, Figs. 1, 2.



Petitioner admits in Ground 1 that *Cobb* fails to consider sub-corrugations terminating below the chamber top, including only an incomplete substitution rationale. Pet. 22, 26-27, 30. Petitioner then tries to remedy this deficiency in Grounds 2 and 3, which identify U.S. Patent No. 4,360,042 to Fouss et al.

(“*Fouss*”) (Ex. 1003) and *Ellis*. Pet. 30-32. But neither *Fouss* nor *Ellis* discloses sub-corrugations that terminate below the chamber top. Indeed, *Ellis* does not even contemplate sub-corrugations, and Petitioner provides no reasoning why one would combine all three of *Ellis*, *Cobb*, and *Fouss* to somehow arrive at the claimed invention. Ground 4 similarly cobbles together—without any reasoned explanation—disparate citations from the three different references. Pet. 32-36. For the reasons explained below, the Board should deny institution on Grounds 1-4.

A. Ground 1 Provides Nothing More Than an Incomplete Basis for Modifying *Cobb*

In Ground 1, the petition acknowledges that *Cobb* does not disclose crest sub-corrugations terminating at an elevation lower than the top of the chamber. Pet. 26. Petitioner then provides an incomplete basis for modifying *Cobb*. Pet. 27-28. Petitioner’s rationale, however, does not provide any basis for instituting review.

Petitioner does not establish that terminating sub-corrugations were a known alternative to continuous sub-corrugations in stormwater chambers before the ’583 patent. Because the petition includes no basis for terminating sub-corrugations, it cannot suggest modifying *Cobb*’s continuous sub-corrugations to terminate below the chamber top as claimed. Petitioner fails to articulate a complete rationale, and thus, the Board should deny institution of Ground 1.

Petitioner's suggestion that the '583 patent's novel combinations of features might yield predictable results or might be known in the prior art is insufficient. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007); *see Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, 600 F. App'x 755, 757-58 (Fed. Cir. 2015). Rather, Petitioner *must* establish that the prior art collectively disclosed or suggested each and every claimed feature *and* provide a reasoned explanation for why the skilled artisan would have made the claimed combinations. *KSR*, 550 U.S. at 418. Here, Petitioner fails to do either. Rather, Ground 1 mirrors similarly flawed petitions that provided "neither a sufficiently articulated reasoning nor a rational evidentiary underpinning explaining why an ordinary artisan would have had considered it obvious." *Kaspersky Lab, Inc. v. Uniloc USA, Inc.*, IPR2015-00178, Paper 10 at 11 (P.T.A.B. Apr. 21, 2015).

While Petitioner admits that *Cobb* does not disclose terminating crest sub-corrugations, it points to no other prior art evidencing that terminating crest sub-corrugations were "known in the field" prior to the '583 patent. Instead, it provides a supposed substitution rationale without ever establishing that a skilled artisan even knew of using terminating sub-corrugations in stormwater chambers at the time of the invention. *See* Pet. 27-30. For example, the petition actively misrepresents the disclosures of *Cobb*, stating that it "discloses *valley* sub-corrugations that . . . will "gradually fade out" to nothing." Pet. 28 (citing Ex. 1002

at 8:57-66). To the contrary, *Cobb* states that “the sub-corrugation feature 108 begins to gradually fade out ... when moving further downward along the chamber sidewall. Thus, *Cobb* never discloses sub-corrugations terminating below the chamber top, and fading “to nothing” has no support in its disclosure. Because the petition never explains how or why a skilled artisan knew of using terminating sub-corrugations in stormwater chambers at the time of the invention, the petition fails to provide a complete obviousness analysis. That is, Petitioner relies on a substitution rationale that presupposes the claimed elements were known, when in fact the claimed terminating sub-corrugations were *not* known outside of the ’583 patent.

To the extent Petitioner intends to rely on a “common sense” rationale to supply the missing limitations, the petition similarly suffers from a fatal flaw, because the petition does not provide “evidence and a reasoned explanation” regarding the presence of the missing limitation in the prior art. *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1363 (Fed. Cir. 2016), *cert. denied sub nom. Google Inc. v. Arendi S.A.R.L.*, No. 16-626, 2017 WL 1040877 (U.S. Mar. 20, 2017). Such evidence and explanation is particularly necessary where “the missing limitation goes to the heart of an invention.” *Id.* Petitioner admits that terminating crest sub-corrugations distinguish the claims from *Cobb*. Pet. 22, 26. This limitation, distinguishing the claims from the cited references, evidences that the terminating

crest sub-corrugations are an important feature of the claimed invention, like that in *Arendi*. Petitioner, however, provides no explanation as to how one skilled in the art would, based on the prior art, know to modify *Cobb* to use the claimed terminating sub-corrugations.

Petitioner's assertions on Ground 1 amount to a collection of conclusory statements, which is not enough here. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006); *see also KSR*, 550 U.S. at 418. Accordingly, the Board should find that Petitioner has not established that terminating sub-corrugations were known prior to the '583 patent.

B. The Board Should Deny Institution on Ground 2 Because *Fouss* Does Not Disclose or Suggest Sub-Corrugations Terminating Below the Chamber Top

Ground 2 identifies *Fouss* as allegedly curing the defects of Ground 1. But *Fouss*, like *Cobb*, does not teach or suggest crest sub-corrugations terminating below the chamber top.

As an initial matter, Petitioner fails to appreciate that *Fouss*'s chamber design includes a corrugation having a "rounded recess" having a different design than *Cobb*'s "sub-corrugation feature." *Compare* Ex. 1003 at 5:26-28, Fig. 5, *with* Ex. 1002 at 8:5-7, Fig. 19 (reproduced below with annotations). *Fouss* relies on ribs on *either side* of its rounded recess to provide structural integrity. Ex. 1003 at 5:14-35. Conversely, *Cobb* inserts a rib *into the middle* of its "sub-corrugation

feature” to support its load. Ex. 1002 at Fig. 19. Petitioner fails to reconcile this fundamental difference in the cross-section of *Fouss* and *Cobb*, which are illustrated below.

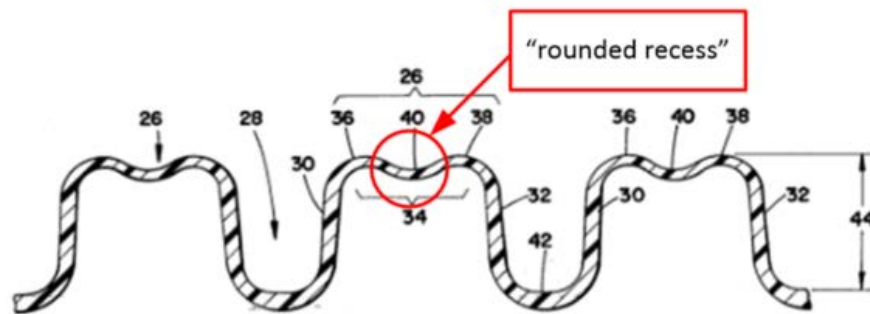


FIG. 5

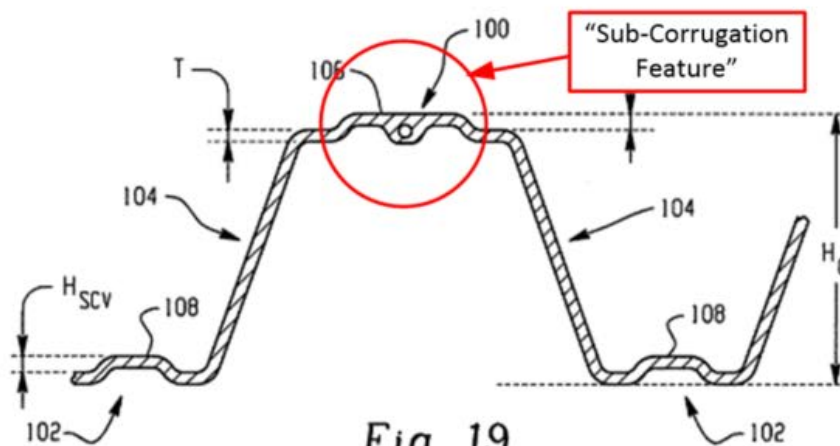
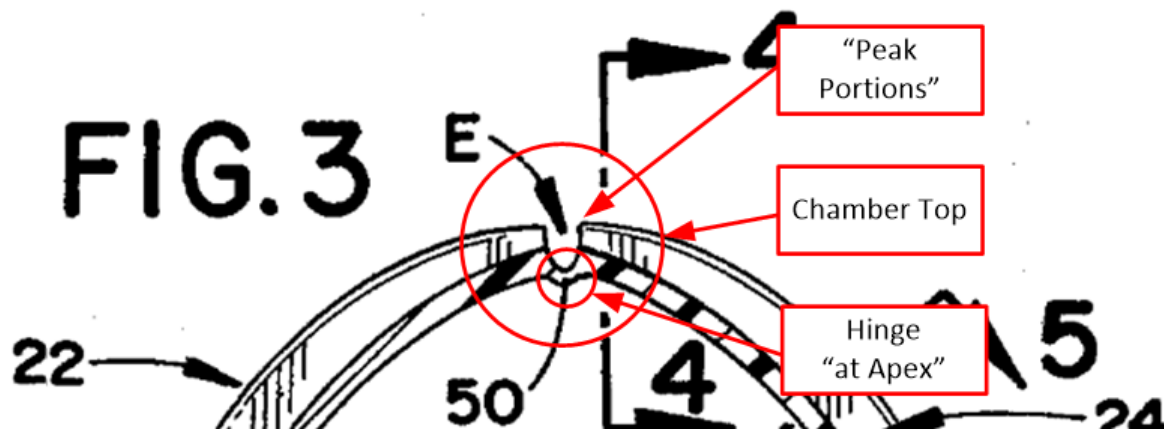


Fig. 19

Petitioner fails to even acknowledge these differences. Petitioner also does not explain how a skilled artisan would accomplish combining these different features or why a skilled artisan would seek to further increase the overall weight and material costs of a chamber by combining the thicker ribs in *Cobb* with the additional rounded recesses of *Fouss*. Moreover, Petitioner’s arguments do not

provide any reasoning why a skilled artisan would understand the “rounded recess” in *Fouss* to apply to the “sub-corrugation feature” of *Cobb*. Further, the petition does not explain how *Fouss* discloses any termination points, much less how they would still apply to the raised and thickened sub-corrugation feature of *Cobb*.
See Pet. 30-31.

Additionally, the recesses in *Fouss* do not terminate below the chamber top. To the contrary, as shown in the annotated figure below, *Fouss* merely includes a hinge *at the apex* of the chamber. Ex. 1003 at 2:34-38, Fig. 3.



According to *Fouss*, “[t]he peak portions 26 are spaced a small distance apart *at the apex area*,” which is “sufficient to form [a] hinge.” *Id.* at 6:12-17 (emphasis added). Because *Fouss* places the peak portions and rounded recess “at the apex area,” and since these features do not terminate below a chamber top, *Fouss* does not disclose or suggest terminating the rounded recesses below the top of the chamber. Accordingly, Ground 2 fails to provide an adequate basis for

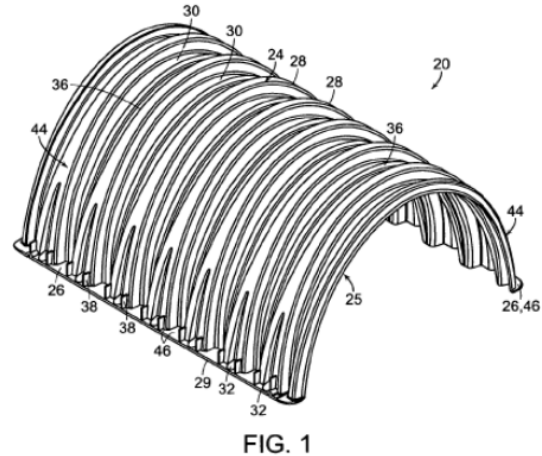
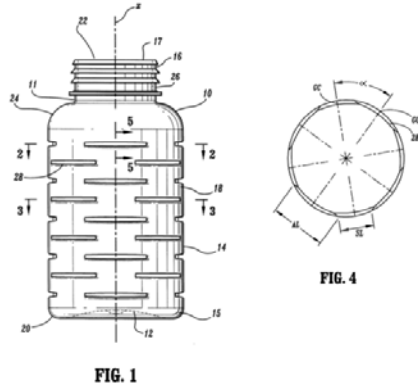
instituting IPR of claims 1, 14, and 19-21. Moreover, the remaining claims depend from one of claims 1 and 14, and thus also include crest sub-corrugations terminating below the chamber top. Therefore, the Board should deny institution of Ground 2 for all claims.

C. Ground 3 Fails to Provide a Basis for Institution Because *Ellis* Does Not Disclose or Suggest Sub-Corrugations Terminating Below the Chamber Top

Petitioner continues its theme of incomplete invalidity theories in Ground 3, where it argues that *Ellis*—which relates to cylindrical, handheld plastic bottles—somehow would inform a skilled artisan on how to design drastically larger and heavier open-bottom stormwater chambers for use under several feet of soil. *See* Pet. 31-32. Like Petitioner’s other identified references, *Ellis* fails to disclose terminating sub-corrugations. In fact, *Ellis* fails to disclose any sub-corrugations.

Ellis relates to an entirely different field, i.e., cylindrical and handheld plastic bottles that have grooves. Ex. 1004 at 4:20-28, 5:8-17, Figs. 1, 4, 5, 5A. As shown below in the correct orientation¹ and compared to the claimed invention, the water bottles disclosed in *Ellis* have nothing to do with the field of the ’583 patent.

¹ The petition confuses the issue by rotating Figure 1 of *Ellis* without providing any explanation as to why one of ordinary skill in the art would interpret *Ellis*’s figures in this fashion. Pet. 49-50.



Ellis, for example, discloses handheld bottles for storing consumables, such as “foodstuffs,” medicines, and liquids (Ex. 1004 at 1:18-20), and is classified in United States Patent Classification (USPC) 215, titled “Bottles and Jars,” and USPC 220, titled “Receptacles” (*id.* at 1). By contrast, the ’583 patent, *Cobb*, and *Fouss*,² classified in USPC 405, titled “Hydraulic and Earth Engineering,” describe underground stormwater chambers that can be 90 inches long, 77 inches wide, 45 inches high, and weigh 120 to 130 pounds. *See, e.g.*, Ex. 1001 at 1, 9:65-10:35; Ex. 1002 at 1, 1:13-23 (describing its application in “plastic detention chambers for burial in the earth for use in temporary stormwater detention”); Ex. 1003 at 1, 1:13-18 (describing its disclosure as “applicable to culverts, tunnels, [and] subterranean conduits”).

² *Fouss* is also cross-listed in USPC 138, titled “Pipes and Tubular Conduits.”

Ex. 1003 at 1.

The grooves in *Ellis* do not terminate below a chamber top. The top portion of the cylindrical bottle described in *Ellis* is determined with reference to the axial direction, and it is the portion that includes a screw-top opening and a neck. *See* Ex. 1004 at Fig. 1, Abstract (“A container is provided which includes a top portion having an opening . . .”). Thus, it is impossible for *Ellis*, which merely includes indentations running perpendicular to the axial direction, to disclose or suggest a sub-corrugations that terminate below a stormwater chamber’s top.

Accordingly, *Ellis* falls short of rendering claim 1 obvious. The claims require termination points at specific locations, namely, below the top of the chamber. The features in *Ellis* are on a cylindrical vessel and lie on an axially symmetric surface with no unique points, much less a top.

By rotating the image of Figure 1 of *Ellis*, Petitioner mischaracterizes *Ellis* to suggest the presence of a “top” where none exists. *See* Pet. 49. When viewed in the proper context, the endpoints of the grooves in *Ellis* have no relation to the described “top.” *Ellis*, therefore, would not provide any motivation or reason to terminate the features in *Cobb* or *Ellis* at any particular point, much less below the top of the chamber as required by the claims of the ’583 patent.

Petitioner does not even attempt to provide a reason why a person of ordinary skill in the art would use the disclosures in *Ellis* to somehow arrive at the conclusion that the features in *Cobb* should terminate below a chamber top.

See Pet. 31-32. Instead, Petitioner argues that *Cobb* discloses sub-corrugations for use “in the widest, flattest areas of the chamber.” Pet. 32. But despite this disclosure, it is clear that *Cobb* never discloses terminating sub-corrugations. *Id.* As explained above, *Ellis* also does not disclose this feature. And Petitioner never reconciles this shortcoming in both *Cobb* and *Ellis*. Accordingly, the Board should find Petitioner’s incomplete arguments unpersuasive. *See, e.g., 2Wire, Inc. v. TQ Delta LLC*, IPR2015-00240, Paper 18 at 8-10 (P.T.A.B. May 29, 2015) (denying obviousness grounds that lack sufficient explanation).

Ground 3 fails to present that Petitioner has a reasonable likelihood of success on proving that claims 1, 14, and 19-21 are unpatentable. Moreover, the remaining claims depend from one of claims 1 and 14, and thus also include crest sub-corrugations terminating below the chamber top. Therefore, the Board should deny institution of Ground 3 for all claims.

D. The Board Should Deny Institution on Ground 4 Because Petitioner Provides No Explanation for Combining *Cobb*, *Fouss*, and *Ellis*

Ground 4 must fail because it does not provide any rationale for combining *Cobb*, *Fouss*, and *Ellis*. In Ground 4, Petitioner does not even acknowledge the basic legal requirements for obviousness. *See* Pet. 32-36; *cf. Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966); *KSR*, 550 U.S. 398. And yet again,

Petitioner’s Ground 4 merely recites unexplained citations, none of which purport to be a reason to combine the three references. Pet. 32-36.

A finding of obviousness requires explicit reasoning for combining teachings from separate references. *KSR*, 550 U.S. at 418; *see also Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011) (“[O]bviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.”). Because Ground 4 includes no reason to combine the references, it fails to provide an obviousness challenge with any chance of success.

To the extent that the Board considers importing Petitioner’s incomplete rationales from other grounds, doing so would be improper because Petitioner never explains why one of ordinary skill would combine teachings from all three references. *In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017) (“*KSR* specifically instructs that when determining whether there would have been a motivation to combine, the “analysis should be made explicit.” (quoting *KSR*, 550 U.S. at 418)). That is, Petitioner never provides any explanation of how all three references—*Fouss*, *Ellis*, and *Cobb*—could or would be combined with each other to somehow arrive at the claimed invention.

It is not the Board's responsibility to do Petitioner's work. Rather, the Board should "address only the basis, rationale, and reasoning put forth by the Petitioner in the petition, and resolve all vagueness and ambiguity in Petitioner's arguments against the Petitioner." *Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co.*, CBM2012-00003, Paper 8 at 10 (P.T.A.B. Oct. 25, 2012). It is the Petitioner's responsibility "to explain specific evidence that support[s] its arguments," and it is "not the Board's responsibility to search the record and piece together what may support Petitioner's arguments." *Dominion Dealer Sols., LLC v. Autoalert, Inc.*, IPR2013-00225, Paper 15 at 4 at 3-4 (P.T.A.B. Oct. 10, 2013).

In Ground 4, Petitioner fails to include *any* rationale. Petitioner, therefore, has not satisfied its statutory duty to identify the challenge to each claim "with particularity," 35 U.S.C. § 312(a)(3), or to show a reasonable likelihood of success, 35 U.S.C. § 314(a). And while Petitioner supplies unexplained and cursory charts with a few block quotes, these charts, without further explanation, do not satisfy Petitioner's statutory duties. *GN Resound A/S v. Oticon A/S*, IPR2015-00103, Paper 10 at 14-15, 26-27 (P.T.A.B. Apr. 29, 2015) ("Beyond the claim chart, Petitioner does not explain in the Petition what aspect of [the reference] discloses [the claimed limitation]."), *request for reh'g denied*, Paper 13 (P.T.A.B. June 18, 2015). Accordingly, IPR should not be instituted on Ground 4.

IV. The Board Should Not Institute Review on the Basis of Grounds 3 and 4 Because *Ellis* Is Nonanalogous Art

As previously explained, *Ellis* relates to small, handheld plastic bottles for storing consumables. *Ellis* is not analogous to the claimed invention, i.e., the stormwater chambers described in the claims of the '583 patent. Therefore, it cannot be combined with *Cobb* and *Fouss* to render the claims obvious. For this additional reason, the Board should deny institution of Grounds 3 and 4, which both rely on *Ellis*.

It is well established that only analogous art can be used to render a claim obvious. *Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1321 (Fed. Cir. 2011); *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011); *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004); *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992). Art is nonanalogous when it is (1) not from the same field of endeavor as the claimed invention; and (2) not reasonably pertinent to the particular problem faced by the inventor. *In re Bigio*, 381 F.3d at 1325; *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979). “[W]e find the diverse Patent Office classification of the references to be *some* evidence of ‘non-analogy.’” *In re Ellis*, 476 F.2d 1370, 1372 (C.C.P.A. 1973). *Ellis* has nothing to do with the claimed invention of the '583 patent claims. *Ellis* relates to “blow molded plastic bottles which employ snap-on, pushed-on, screw-on, etc., cap structures.” Ex. 1004 at 4:19-22. *Ellis* does not relate to the drastically different stormwater chambers described in the claims of

the '583 patent, which are for use in construction sites, have considerably larger dimensions, and serve an entirely different purpose of underground stormwater management.

The different classifications of *Ellis* and the '583 patent reinforce this point. Neither the classification nor the field of search for *Ellis* includes any U.S. or International Patent classes common to the '583 patent. The Patent Office classified the '583 patent in USPC 405 for “Hydraulic and Earth Engineering,” and during prosecution, the Patent Office searched USPC 52 for “Static Structures (e.g., Buildings).” Ex. 1001 at 1. By contrast, the Patent Office classified *Ellis* in USPC 215 for “Bottles and Jars” and cross-listed it in USPC 220 for “Receptacles.” *Compare* Ex. 1001 at 1, *with* Ex. 1004 at 1. As the Patent Office recognized, *Ellis* is not from the same field of endeavor.

Because *Ellis* is not from the same field of endeavor, Petitioner must establish that *Ellis* is reasonably pertinent to the particular problem at hand. And art is “reasonably pertinent” when it would “logically . . . commend[] itself” to an inventor’s attention in considering his problem. *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379-80 (Fed. Cir. 2007) (quoting *In re Clay*, 966 F.2d at 659). *Ellis*, however, concerns a completely different problem: axial and radial rigidity of handheld cylindrical bottles used for storing consumables. Ex. 1004 at 4:10-18. Unlike arched stormwater chambers, which typically have an open bottom and

noncircular configuration, *Ellis* describes only round, fully enclosed bottles with a screw-on lid. *Id.* at 4:19-22, Fig. 1. Axial and radial rigidity of these handheld bottles differs from open-bottomed arch structures like those claimed in the '583 patent. Thus, the problems identified in *Ellis* do not relate to the problems solved by the '583 patent's inventors. Petitioner does not provide any explanation as to how one of ordinary skill would know to relate the very different problems solved by *Ellis* to arched stormwater chambers.

In sum, *Ellis* is not analogous art because it neither (1) addresses the same relevant problems nor (2) serves the same purpose as the claimed invention.

And even if the Board disagrees with *Ellis*'s status as nonanalogous art, it should deny institution of Grounds 3 and 4 because the petition fails to bridge the differences between the fields of *Ellis*, i.e., screw-top bottles, and open-bottom stormwater chambers. *See Dexcowin Glob., Inc. v. Aribex, Inc.*, IPR2016-00440, Paper 13 at 17-18 (P.T.A.B. July 7, 2016) ("Petitioner's conclusory assertion that it would have been obvious to modify [Reference A] based on certain applications particular to [Field B] is not sufficient articulated reasoning to support the proposed modification of [Reference A], especially given the lack of evidence that [Reference A] would have been used in [Field B]."). Far from articulating a reason why one would look to a divergent field for solutions, Petitioner merely concludes that one would somehow employ *Ellis*'s discontinuous grooves on *Cobb*'s chamber

to arrive at the claimed solution. Pet. 31-32. This mere conclusion falls short of the required articulated reasoning necessary to demonstrate a reasonable likelihood of success.

Moreover, “the Board ‘must still be careful not to allow hindsight reconstruction of references . . . without any explanation as to *how* or *why* the references would be combined to produce the claimed invention.’” *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016) (quoting *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1368 (Fed. Cir. 2012)). Petitioner has not explained how or why a person of ordinary skill in the art would have combined *Ellis* and *Cobb* to arrive at the claimed invention. Accordingly, Petitioner improperly relies on *Ellis*, and since Grounds 3 and 4 rely on *Ellis*, the Board should not institute IPR based on Grounds 3 or 4.

V. The Board Should Deny Institution of All Grounds Based on *Cobb* Because *Cobb* Is Not Prior Art

The Board should deny institution of all grounds for claims 1-7, 9, 11, 13, 15, 16, and 19-21, because *Cobb* is not prior art to these claims of the ’583 patent.

The ’583 patent was filed in 2010 and claims priority to a provisional application filed on June 5, 2009. Ex. 1001 at 1. Accordingly, the pre-AIA, first-to-invent regime applies. Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 3(n), 125 Stat. 284, 293 (2011). Under this regime, a reference is not available as prior art under pre-AIA § 102(e) if it was filed after the date of

invention by the applicant for patent. 35 U.S.C. § 102(e) (1999); *see Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 60-61 (1998).

Petitioner’s four grounds all rely on *Cobb*. But even assuming that *Cobb* is entitled to a § 102(e) date of February 13, 2008, it is not prior art under the pre-AIA first-to-invent regime. That is, the ’583 patent’s inventors conceived of the claimed invention prior to February 13, 2008, and their work resulted in an actual reduction to practice of claims 1-7, 9, 11, 13, 15, 16, and 19-21 prior to *Cobb*’s priority date.³


A. The Inventors Conceived the Claimed Invention Prior to *Cobb*’s Priority Date



“Conception is ‘the formation in the mind of the inventor[] of a definite and permanent idea of the complete and operative invention, as it is therefore to be applied in practice.’” *Singh v. Brake*, 222 F.3d 1362, 1367 (Fed. Cir. 2000) (alteration in original) (quoting *Kridl v. McCormick*, 105 F.3d 1446, 1449 (Fed. Cir. 1997)).


³ Inventors David Mailhot and Timothy McGrath submit declarations concerning these events. *See* Ex. 2008; Ex. 2009. And, a third party, Brent Bass, submits a declaration authenticating the photographs of Ex. 2005 and Ex. 2006. *See* Ex. 2007.

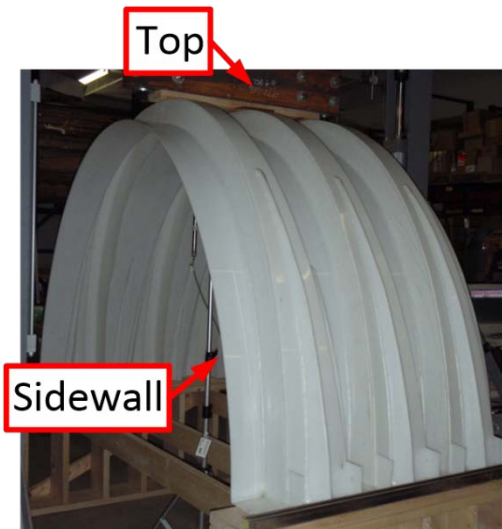
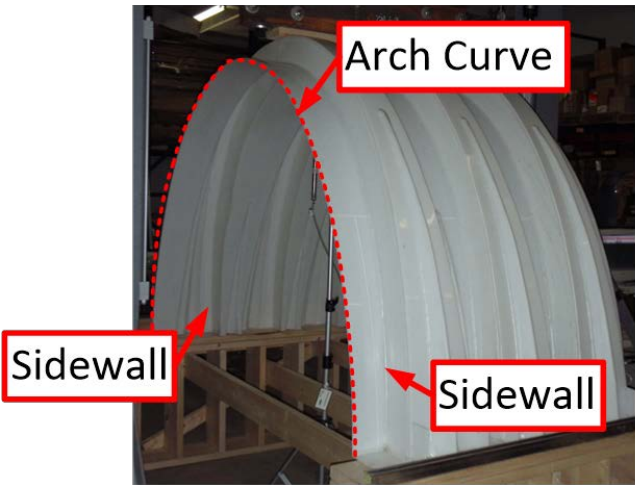
The inventors of the '583 patent conceived of the invention recited in claims 1-7, 9, 11, 13, 15, 16, and 19-21 prior to February 13, 2008. As evidence of this conception, in October 2007, the inventors designed and built a prototype stormwater chamber that used corrugations and sub-corrugations. Ex. 2008, ¶ 8; Ex. 2009, ¶ 8; Ex. 2005; Ex. 2007, ¶ 3. As shown in the table below that includes images of this prototype chamber, the inventors conceived of “every limitation” of claims 1-7, 9, 11, 13, 15, 16, and 19-21 before *Cobb. Coleman v. Dines*, 754 F.2d 353, 359 (Fed. Cir. 1985). And even though courts do not require corroboration when physical evidence proves conception, *Slip Track Sys., Inc. v. Metal-Lite, Inc.*, 304 F.3d 1256, 1263 (Fed. Cir. 2002), the inventors’ testimony submitted with this Preliminary Response confirms that the identified inventive steps occurred before February 13, 2008. *See, e.g.*, Ex. 2008; Ex. 2009.

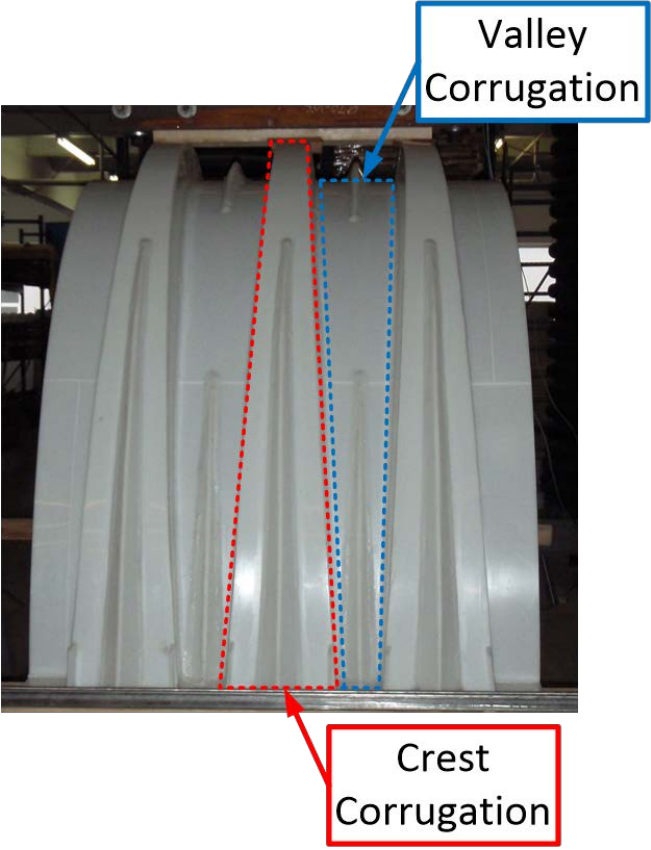
1. Claim 1

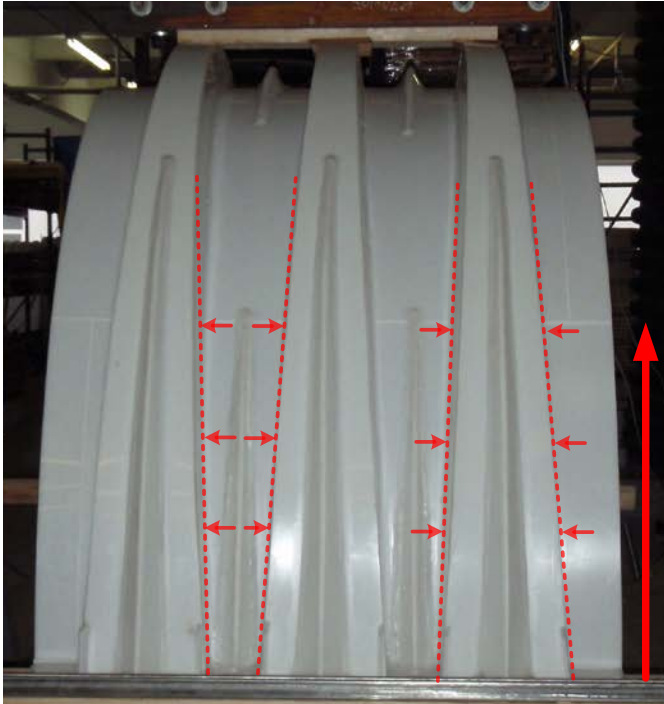
Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>1. A chamber, comprising:</p>	<p>StormTech's prototype is a stormwater collection chamber. Ex. 2005 at 1.</p> 

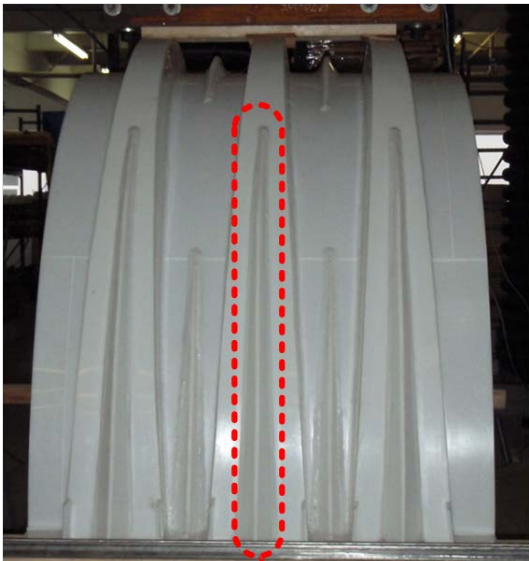
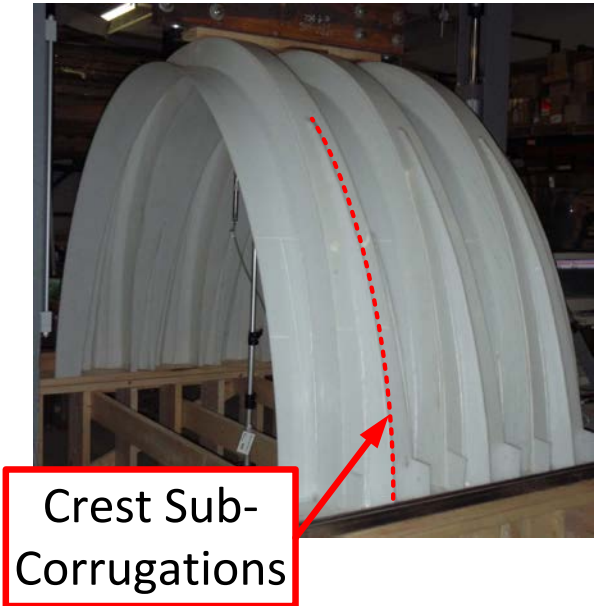
Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>opposing side bases running generally parallel to a chamber length for supporting the chamber;</p>	<p>The StormTech prototype chamber includes two opposing side bases, each having a horizontal flange. <i>See, e.g., Ex. 2005 at 1.</i></p> <div data-bbox="782 611 1224 1031">A photograph of a white, arched, ribbed structure (the StormTech prototype chamber) resting on a wooden frame. A red dashed line highlights the horizontal flange at the base of the structure.</div> <div data-bbox="782 1142 1235 1570">A photograph of the same white, arched, ribbed structure. Two red dashed circles highlight the horizontal flanges at the base of the structure.</div>

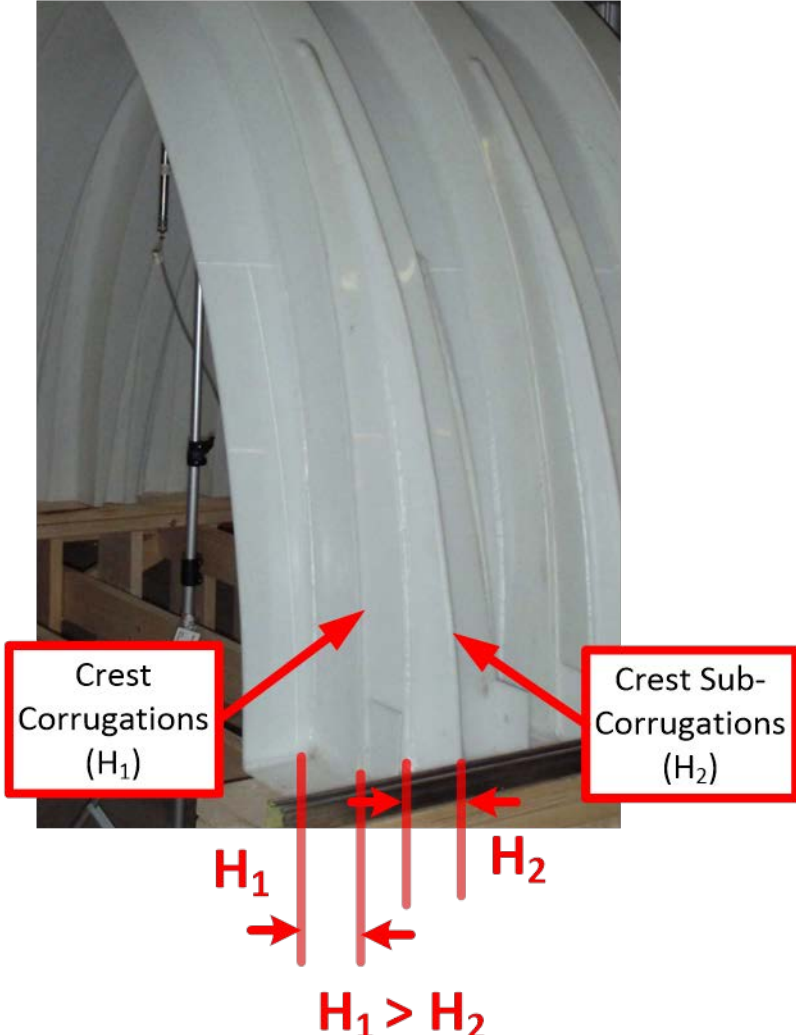
Claim 1 of the '583 Patent	StormTech's Prototype Chamber
a chamber top;	<p data-bbox="604 338 1432 462">The StormTech prototype chamber includes a chamber top. <i>See, e.g.,</i> Ex. 2005 at 1.</p> <div data-bbox="669 493 1347 1228"><p data-bbox="812 493 938 588">Top</p></div>


Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>sidewalls running from the opposing side bases to the chamber top, wherein the sidewalls and top form an arch-curve;</p>	<p>The StormTech prototype chamber includes two opposing side bases extending to the chamber's top and forming an arch-curve. <i>See, e.g., Ex. 2005 at 1.</i></p> <div data-bbox="760 604 1258 1129"><p>This photograph shows the StormTech prototype chamber, which is a large, white, arched structure made of multiple curved panels. A red arrow points to the top of the arch, labeled 'Top'. Another red arrow points to one of the curved panels, labeled 'Sidewall'.</p></div> <div data-bbox="695 1234 1325 1717"><p>This photograph shows the StormTech prototype chamber from a different angle. A red dashed line outlines the arch curve, labeled 'Arch Curve'. Two red arrows point to the curved panels, both labeled 'Sidewall'.</p></div>

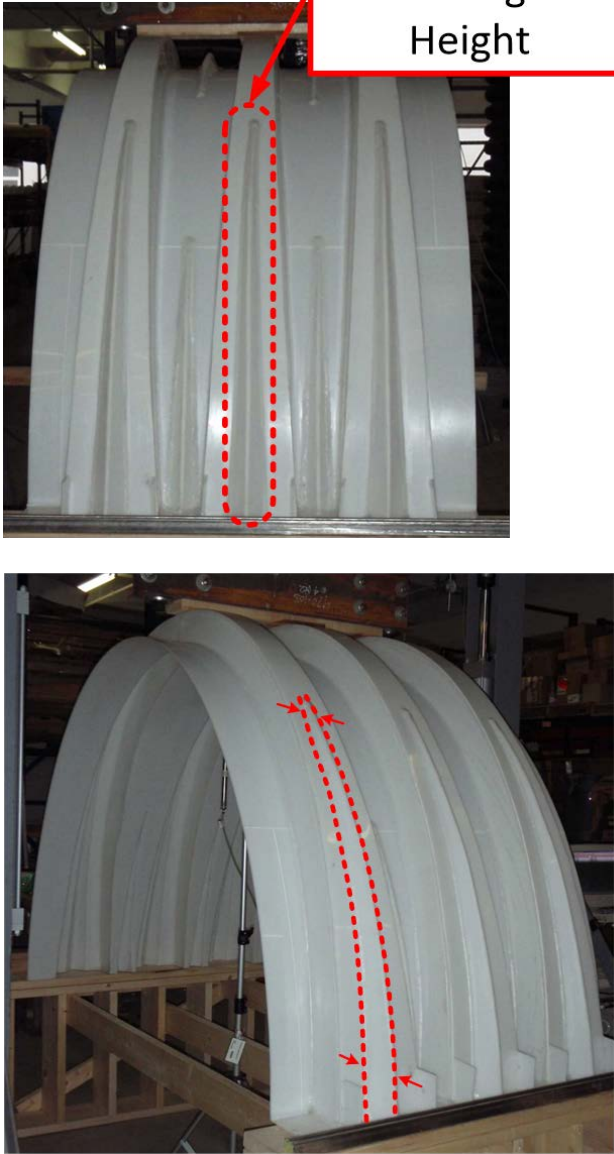
Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of alternating crest corrugations and valley corrugations running transverse to the length of the chamber along the arch-curve of the chamber,</p>	<p>The StormTech prototype chamber includes multiple alternating valley corrugations and crest corrugations, running along the arch-curve perpendicular to the base. <i>See, e.g.</i>, Ex. 2005 at 2.</p> 

Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>wherein the crest corrugations decrease in width with elevation from the opposing side bases, and the valley corrugations increase in width with elevation from the opposing side bases, as width is measured in a direction parallel to the chamber length; and</p>	<p>The StormTech prototype chamber includes crest corrugations that decrease in width as they extend away from the base, and valley corrugations that increase in width as they extend away from the base. <i>See, e.g., Ex. 2005 at 2.</i></p>  <p>Increasing Distance from Base</p>

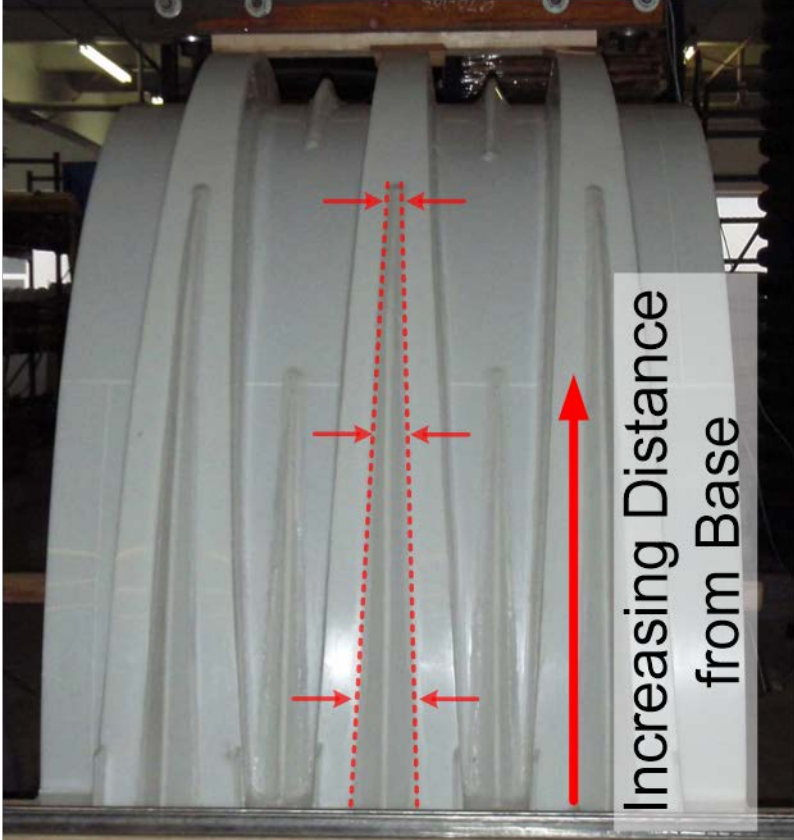
Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of crest sub-corrugations, each crest sub-corrugation running upwardly from an opposing side base and along a portion of the arch-curve of a crest corrugation,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations running upward from the base along crest corrugations. <i>See, e.g.,</i> Ex. 2005 at 1-2.</p> <div data-bbox="727 533 1252 1089"></div> <div data-bbox="714 1264 1304 1866"></div>

Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>each crest sub-corrugation having a height less than a local height of the crest corrugation with which the crest sub-corrugation is associated,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations having a height that is less than the local height of the crest corrugation. <i>See, e.g., Ex. 2005 at 1.</i></p>  <p>Crest Corrugations (H_1)</p> <p>Crest Sub-Corrugations (H_2)</p> <p>$H_1 > H_2$</p>

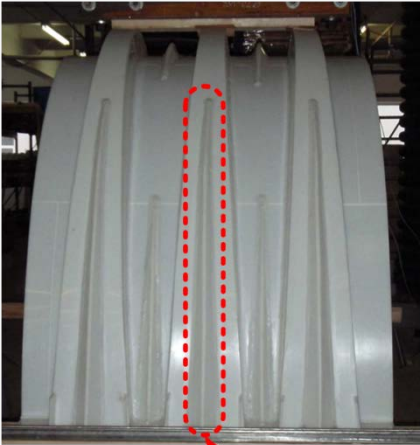
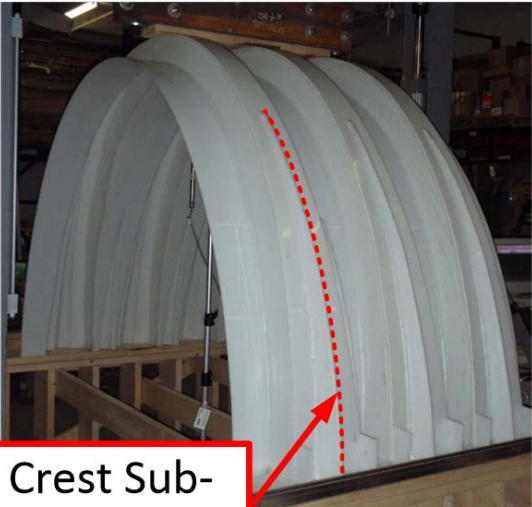
Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>each crest sub-corrugation terminating at an elevation lower than the top of the chamber,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations that terminate below the top of the chamber. <i>See, e.g.,</i> Ex. 2005 at 1.</p> 

Claim 1 of the '583 Patent	StormTech's Prototype Chamber
<p>wherein the height of each crest sub-corrugation diminishes with increasing elevation.</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations that diminish in height with increasing elevation from the base. <i>See, e.g., Ex. 2005 at 1-2.</i></p> <div data-bbox="703 577 1328 1829"><p data-bbox="1008 577 1328 751">Diminishing Sub-Corrugation Height</p></div>

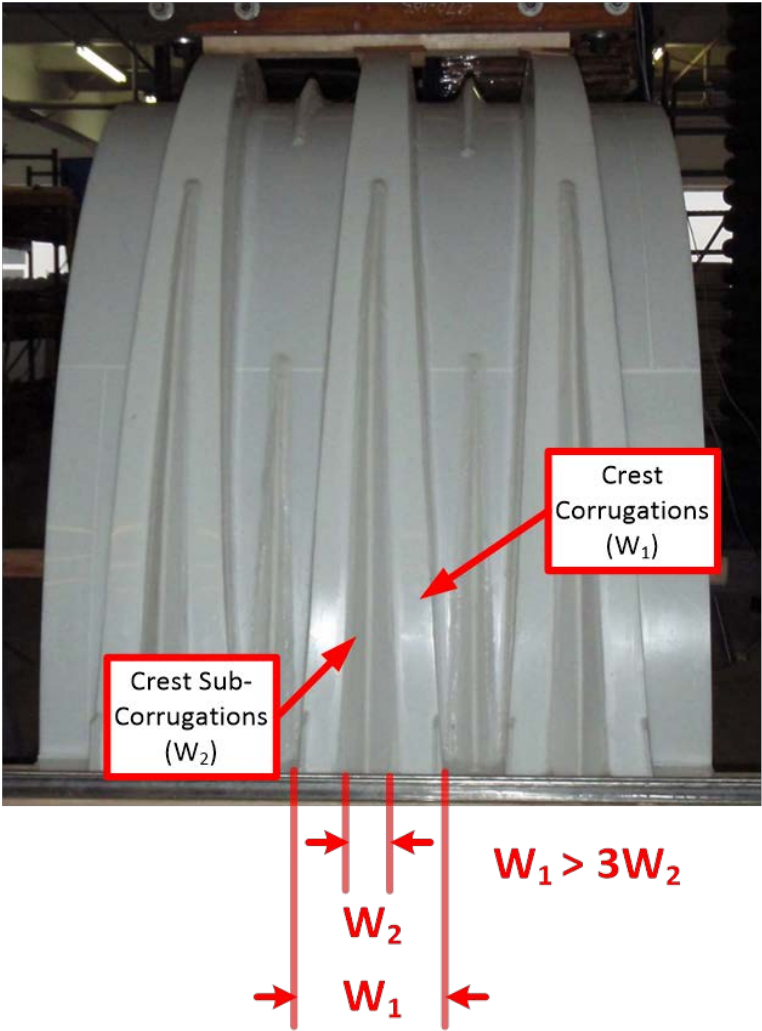
2. Claim 2

Claim 2 of the '583 Patent	StormTech's Prototype Chamber
<p>2. The chamber of claim 1, wherein each crest sub-corrugation has a width which diminishes with increasing elevation.</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations diminishing in width with elevation, as measured from the base of the chamber. <i>See, e.g., Ex. 2005 at 2.</i></p> 


3. Claim 3

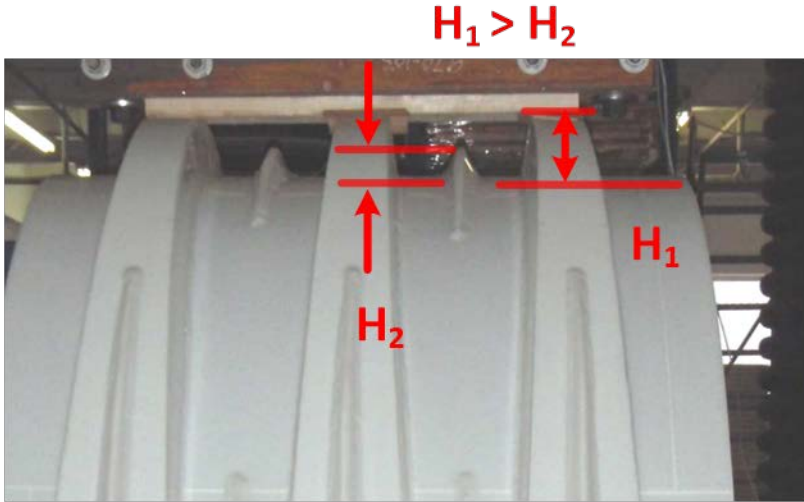
Claim 3 of the '583 Patent	StormTech's Prototype Chamber
<p>3. The chamber of claim 1, wherein the crest sub-corrugations extend about one quarter to two-thirds of a height of the chamber.</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations running upward from the base along crest corrugations and extending approximately two-thirds the height of the chamber. <i>See, e.g., Ex. 2005 at 1-2.</i></p> <div data-bbox="792 695 1209 1136"></div> <div data-bbox="1036 1136 1247 1241"><p>Crest Sub-Corrugations</p></div> <div data-bbox="764 1276 1292 1780"></div> <div data-bbox="735 1717 1011 1843"><p>Crest Sub-Corrugations</p></div>


4. Claim 4

Claim 4 of the '583 Patent	StormTech's Prototype Chamber
<p>4. The chamber of claim 1, wherein a maximum width of each crest sub-corrugation is no more than one-third of a local width of the associated crest corrugation.</p>	<p>The StormTech prototype chamber includes crest sub-corrugations that are no more than one-third of the width of the associated crest corrugations. <i>See, e.g., Ex. 2005 at 2.</i></p>  <p>The photograph shows a white, corrugated plastic chamber. Two red arrows point to specific features: one points to a narrow ridge labeled 'Crest Sub-Corrugations (W₂)' and the other points to a wider ridge labeled 'Crest Corrugations (W₁)'. Below the photo, a diagram illustrates the width relationship. It shows a wide vertical line labeled W₁ and a narrow vertical line labeled W₂. Red arrows indicate the widths. The text $W_1 > 3W_2$ is written in red to the right of the diagram.</p>


5. Claim 5

Claim 5 of the '583 Patent	StormTech's Prototype Chamber
<p>5. The chamber of claim 1, further comprising a plurality of valley sub-corrugations, each valley sub-corrugation running downwardly from the top of the chamber and along part or all of a valley corrugation,</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that run along the valley corrugations and down from the top of the chamber. <i>See, e.g., Ex. 2005 at 2.</i></p> <p>Valley Sub-Corrugations</p> 

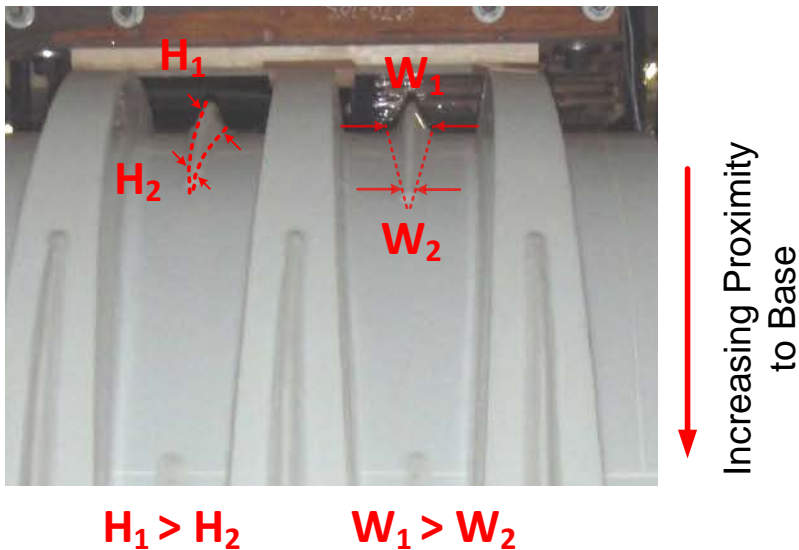
Claim 5 of the '583 Patent	StormTech's Prototype Chamber
<p>each valley sub-corrugation having a height less than a depth of the valley corrugation with which the valley sub-corrugation is associated,</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that have a height less than the depth of the valley corrugation. <i>See, e.g., Ex. 2005 at 2.</i></p> <div data-bbox="618 594 1417 1092"></div> <div data-bbox="626 1119 870 1287">Valley Sub-Corrugation Height (H_2)</div> <div data-bbox="911 1119 1328 1287">Valley Corrugation Depth and Crest Corrugation Height (H_1)</div>

Claim 5 of the '583 Patent	StormTech's Prototype Chamber
each valley sub-corrugation terminating at an elevation lower than the top of the chamber.	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that terminate at an elevation lower than the top of the chamber. <i>See, e.g.,</i> Ex. 2005 at 2.</p> 

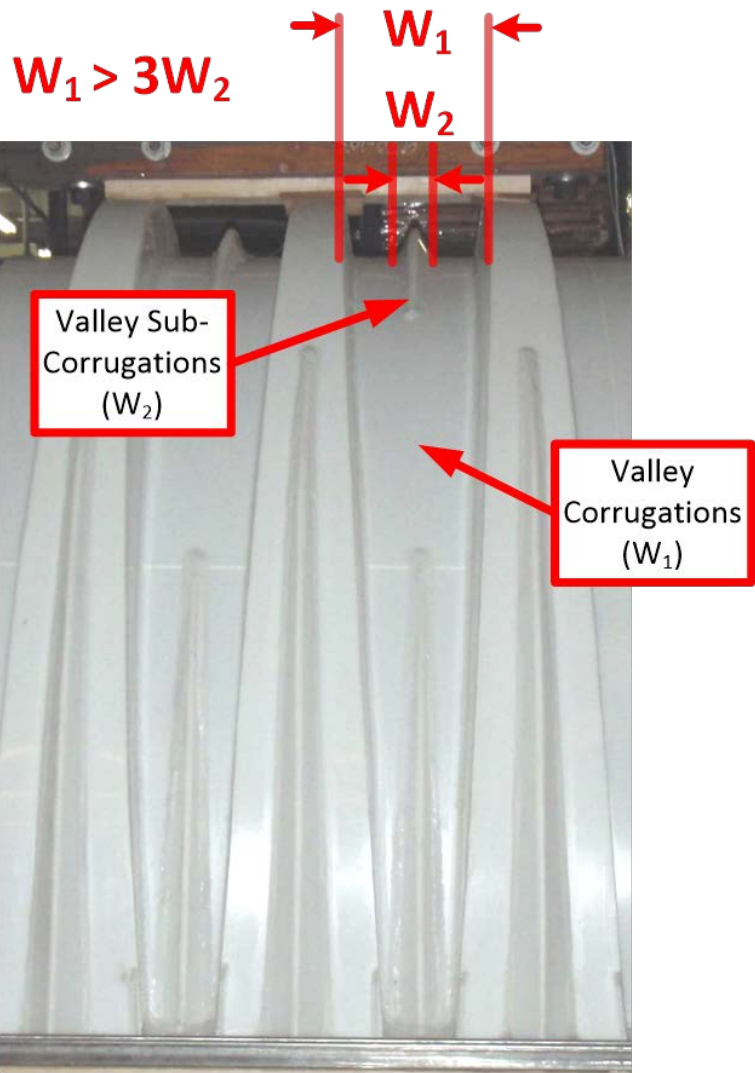
6. Claim 6

Claim 6 of the '583 Patent	StormTech's Prototype Chamber
<p>6. The chamber of claim 5, wherein each valley sub-corrugation terminates at an elevation above the opposing side bases.</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that terminate at an elevation above the opposing side bases of the chamber. <i>See, e.g., Ex. 2005 at 2.</i></p> 

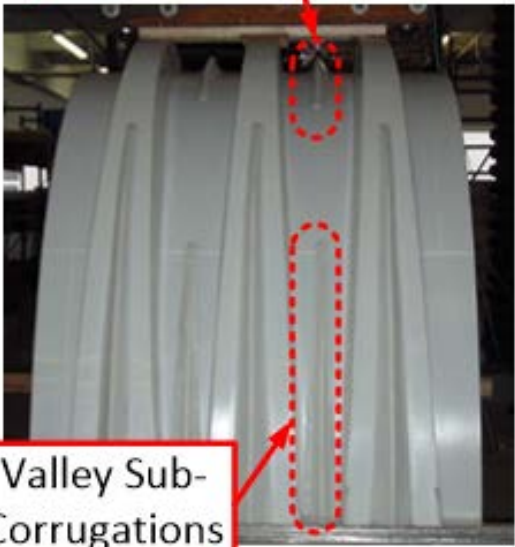
7. Claim 7



Claim 7 of the '583 Patent	StormTech's Prototype Chamber
<p>7. The chamber of claim 6, wherein each valley sub-corrugation diminishes in both height and width in proximity to the opposing side bases, as width is measured in a direction which is parallel to the length of the chamber.</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that diminish in height and width with increasing proximity to the opposing side bases. <i>See, e.g., Ex. 2005 at 2.</i></p>  <p>$H_1 > H_2$ $W_1 > W_2$</p>

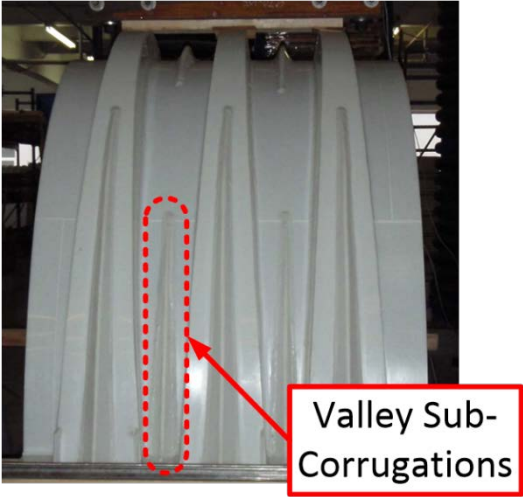
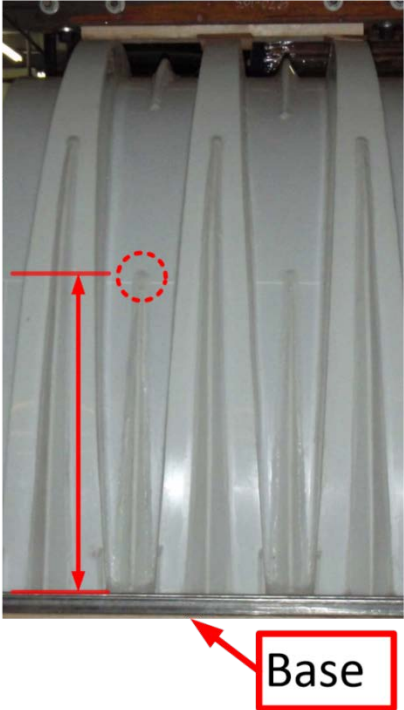
8. Claim 9

Claim 9 of the '583 Patent	StormTech's Prototype Chamber
<p>9. The chamber of claim 5, wherein a maximum width of each valley sub-corrugation is no more than one-third of a local width of the associated valley corrugation, as width is measured in a direction parallel to the length of the chamber.</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations with widths no more than one-third of a local width of the associated valley corrugation. <i>See, e.g., Ex. 2005 at 2.</i></p> 


9. Claim 11


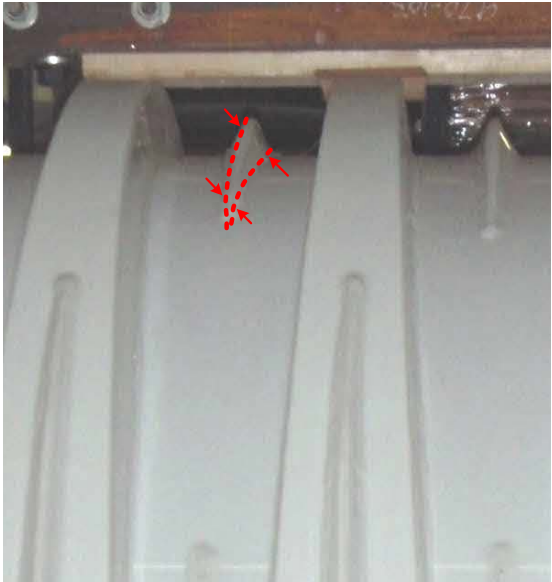
Claim 11 of the '583 Patent	StormTech's Prototype Chamber
<p>11. The chamber of claim 1, further comprising a first plurality of valley sub-corrugations and a second plurality of valley sub-corrugations,</p>	<p>The StormTech prototype chamber includes a first plurality of valley sub-corrugations and a second plurality of valley sub-corrugations. <i>See, e.g., Ex. 2005 at 2.</i></p> <div data-bbox="743 667 1282 1371"><p>The photograph shows a white, vertically oriented, corrugated plastic chamber. Two red dashed rectangles highlight specific valley sub-corrugations. A red arrow points from the top label 'Valley Sub-Corrugations' to the top rectangle. Another red arrow points from the bottom label 'Valley Sub-Corrugations' to the bottom rectangle.</p></div>

Claim 11 of the '583 Patent	StormTech's Prototype Chamber
<p>each of the first plurality of valley sub-corrugations running downwardly from the top of the chamber and along part or all of a valley corrugation and terminating at terminal ends above the elevation of the opposing side bases,</p>	<p>The StormTech prototype chamber includes a first plurality of valley sub-corrugations that run down from the top of the chamber along the valley corrugations and terminate above the opposing side bases. <i>See, e.g., Ex. 2005 at 2.</i></p> <div data-bbox="776 632 1263 1146"></div> <div data-bbox="829 1209 1208 1791"></div> <div data-bbox="906 1801 1040 1885"><div>Base</div></div>

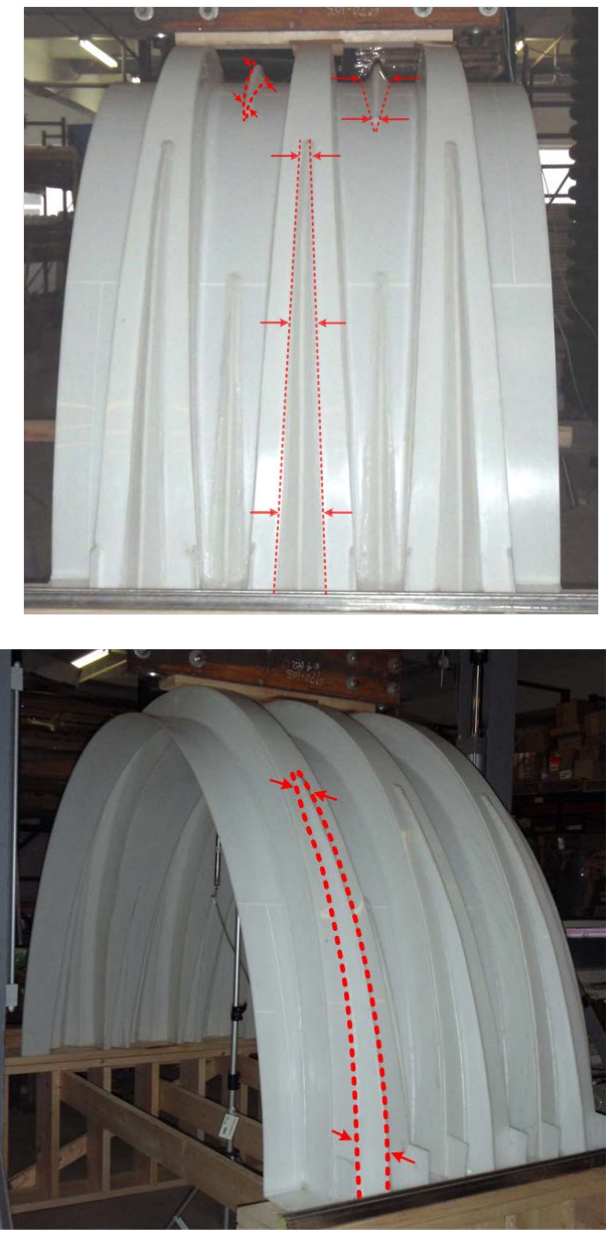
Claim 11 of the '583 Patent	StormTech's Prototype Chamber
<p>each of the second plurality of valley sub-corrugations running within a valley corrugation upwardly from an opposing side base in the direction of said terminal ends of the first plurality of valley sub-corrugations.</p>	<p>The StormTech prototype chamber includes a second plurality of valley sub-corrugations that run upward from the opposing side base along the valley corrugations. <i>See, e.g., Ex. 2005 at 2.</i></p> <div data-bbox="760 577 1279 1071"><p>Valley Sub-Corrugations</p></div> <div data-bbox="820 1106 1221 1812"><p>Base</p></div>

10. Claim 13

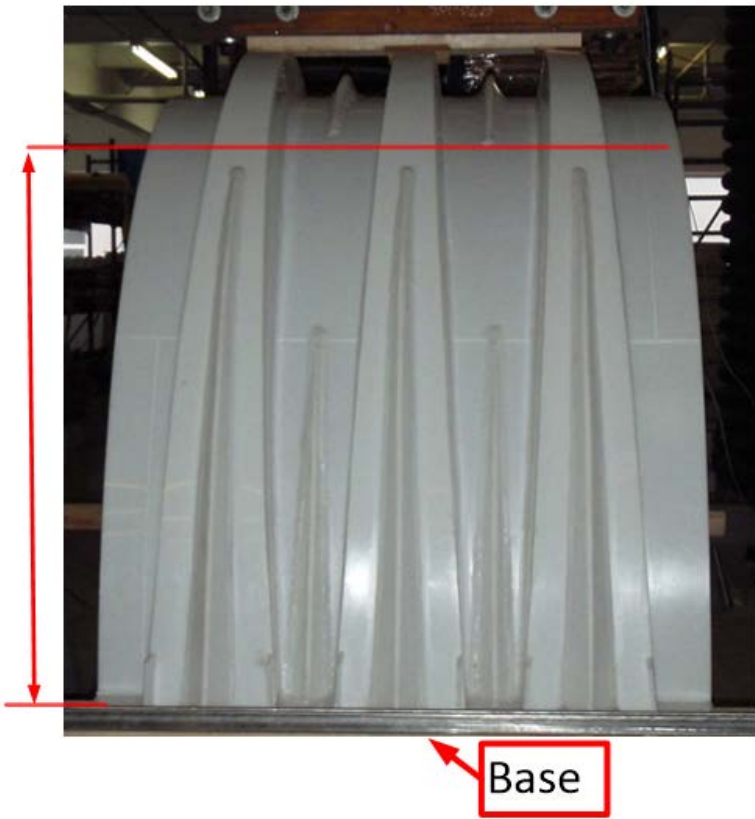
Claim 13 of the '583 Patent	StormTech's Prototype Chamber
<p>13. The chamber of claim 1, further comprising a plurality of valley sub-corrugations, each valley sub-corrugation running along a valley corrugation, downwardly from the top of the chamber towards the opposing side bases,</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that run along the valley corrugations and down from the top of the chamber. <i>See, e.g., Ex. 2005 at 2.</i></p> <p data-bbox="787 745 1055 871">Valley Sub-Corrugations</p> 

Claim 13 of the '583 Patent	StormTech's Prototype Chamber
<p>wherein a height of each valley sub-corrugation decreases as the valley sub-corrugation approaches the opposing side bases.</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that diminish in height with increasing proximity to the base. <i>See, e.g.</i>, Ex. 2005 at 2.</p> <div data-bbox="760 583 1274 1197"><p>Diminishing Sub-Corrugation Height</p></div> <div data-bbox="673 1249 1372 1827"><p>Increasing Proximity to Base</p></div>


11. Claim 15



Claim 15 of the '583 Patent	StormTech's Prototype Chamber
<p>15. The chamber of claim 14, wherein a width and a depth of each sub-corrugation change along part or all of the sub-corrugation as the width of the crest corrugation or valley corrugation with which the sub-corrugation is associated changes.</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations and valley sub-corrugations that change in width and height as the associated corrugations change. Ex. 2005 at 1-2.</p> 


12. Claim 16

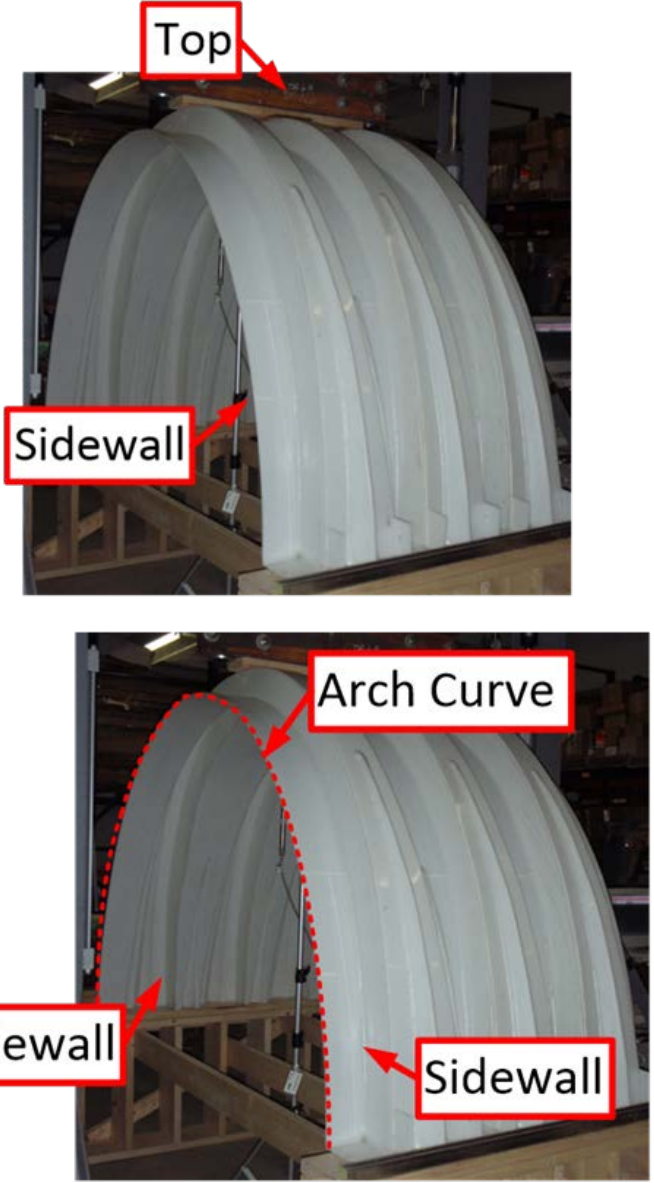
Claim 16 of the '583 Patent	StormTech's Prototype Chamber
<p>16. The chamber of claim 14, wherein the elevations of the termination points of the first plurality of sub-corrugations are the same.</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations that terminate at the same elevation. <i>See, e.g.</i>, Ex. 2005 at 2.</p> 

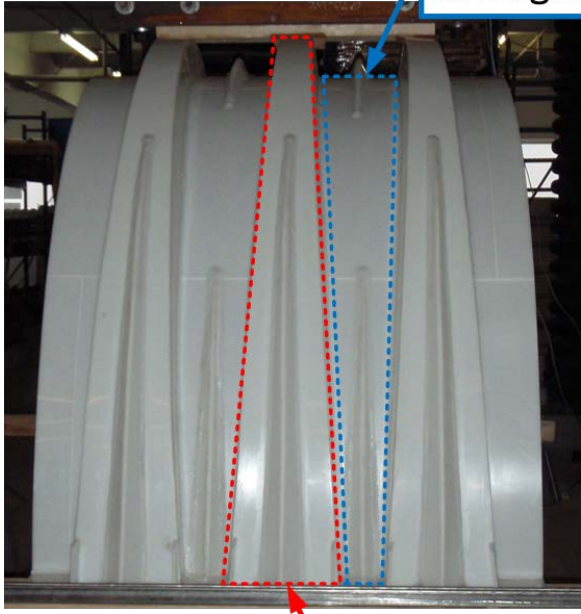
13. Claim 19

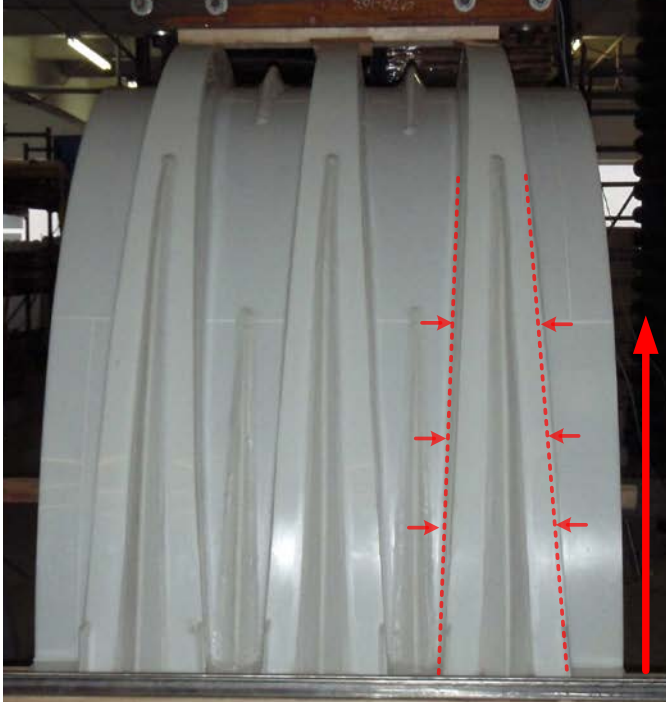
Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>19. A chamber, comprising:</p>	<p>StormTech's prototype is a stormwater collection chamber. Ex. 2005 at 1.</p> <div data-bbox="722 640 1291 1182"></div>

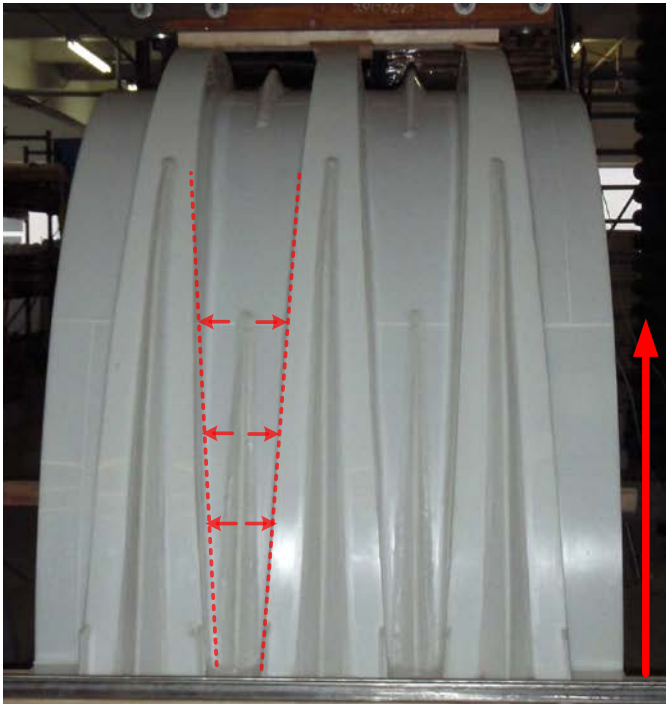
Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>opposing side bases running generally parallel to a chamber length for supporting the chamber;</p>	<p>The StormTech prototype chamber includes two opposing side bases, each having a horizontal flange. <i>See, e.g., Ex. 2005 at 1.</i></p> <div data-bbox="735 537 1295 1041"></div> <div data-bbox="735 1077 1278 1591"></div>

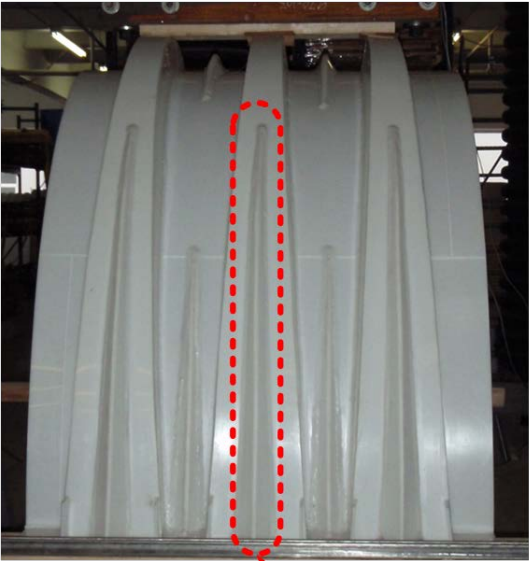
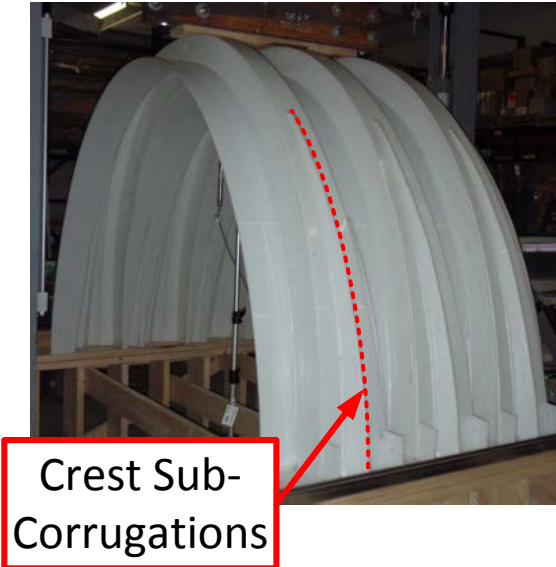
Claim 19 of the '583 Patent	StormTech's Prototype Chamber
a chamber top;	<p>The StormTech prototype chamber includes a chamber top. <i>See, e.g.,</i> Ex. 2005 at 1.</p> <div data-bbox="737 487 1279 1075"></div>

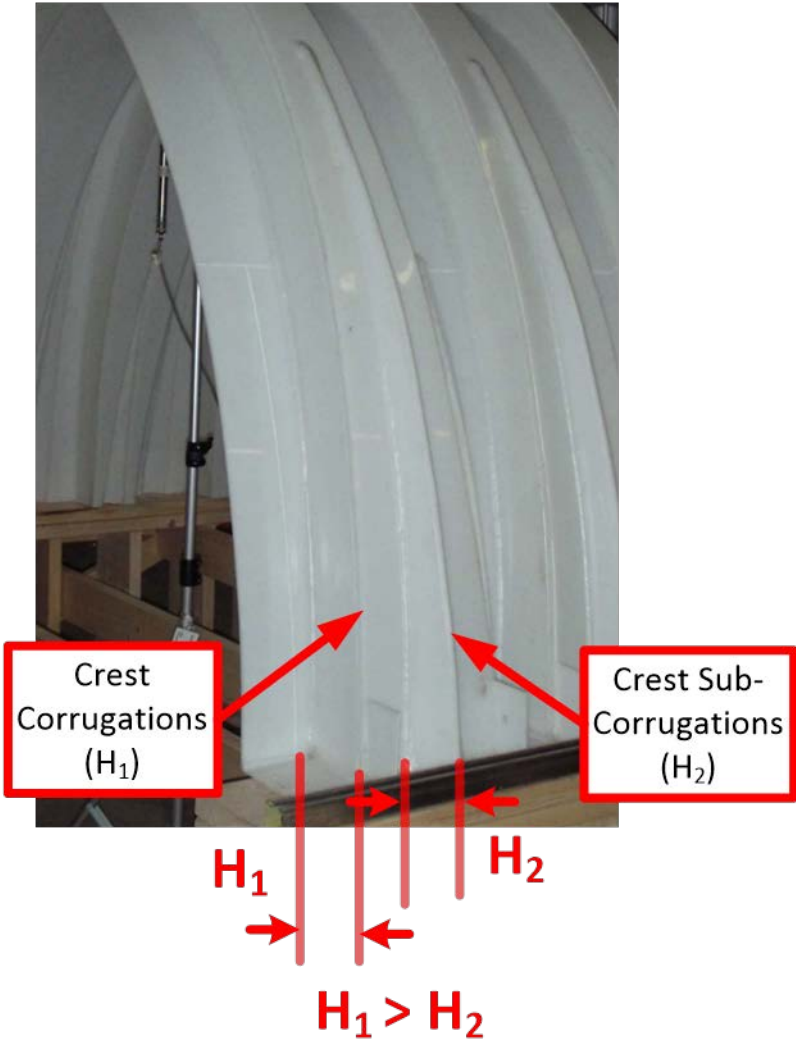
Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>sidewalls running from the opposing side bases to the chamber top, wherein the sidewalls and top form an arch-curve;</p>	<p>The StormTech prototype chamber includes two opposing side bases extending to the chamber's top and forming an arch-curve. <i>See, e.g., Ex. 2005 at 1.</i></p>  <p>The top photograph shows a perspective view of the StormTech prototype chamber. It is a white, arched structure made of multiple curved panels. A red arrow points to the top edge, labeled 'Top'. Another red arrow points to one of the curved panels, labeled 'Sidewall'.</p> <p>The bottom photograph shows a similar perspective view of the chamber. A red dashed line traces the arch curve of the top edge, labeled 'Arch Curve'. Two red arrows point to the curved panels, both labeled 'Sidewall'.</p>


Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of alternating crest corrugations and valley corrugations running transverse to the length of the chamber along the arch curve of the chamber,</p>	<p>The StormTech prototype chamber includes multiple alternating valley corrugations and crest corrugations, running along the arch-curve perpendicular to the base. <i>See, e.g.,</i> Ex. 2005 at 2.</p> <div data-bbox="690 577 1339 1417"><p>The photograph shows a white, curved, ribbed structure. A blue dashed line outlines a valley, with a blue arrow pointing to it from a label 'Valley Corrugation'. A red dashed line outlines a crest, with a red arrow pointing to it from a label 'Crest Corrugation'.</p></div>

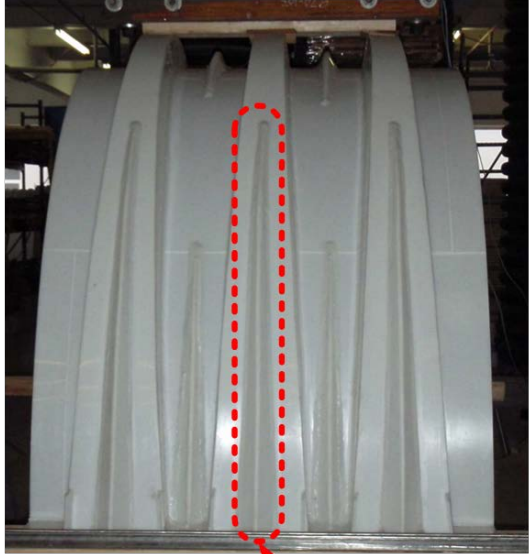
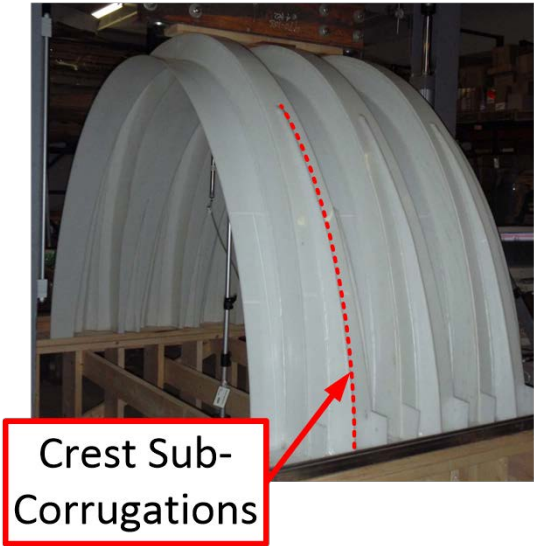
Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>wherein the crest corrugations decrease in width with elevation from the opposing side bases, and</p>	<p>The StormTech prototype chamber includes crest corrugations that decrease in width as they extend away from the base. <i>See, e.g.</i>, Ex. 2005 at 2.</p> <div data-bbox="618 537 1401 1234"><p>Increasing Distance from Base</p></div>

Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>the valley corrugations increase in width with elevation from the opposing side bases, as width is measured in a direction parallel to the chamber length; and</p>	<p>The StormTech prototype chamber includes valley corrugations that increase in width as they extend away from the base. <i>See, e.g.</i>, Ex. 2005 at 2.</p> <div data-bbox="618 533 1401 1232"><p data-bbox="1295 779 1401 1213">Increasing Distance from Base</p></div>


Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of crest sub-corrugations, each sub-corrugation running upwardly from an opposing side base and along a portion of the arch-curve of a crest corrugation,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations running upward from the base along crest corrugations. <i>See, e.g., Ex. 2005 at 1-2.</i></p> <div data-bbox="727 535 1252 1092"></div> <div data-bbox="732 1266 1284 1829"></div>



Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>each sub-corrugation having a height less than a local height of the crest corrugation with which the sub-corrugation is associated,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations having a height that is less than the local height of the crest corrugation. <i>See, e.g.,</i> Ex. 2005 at 2.</p> <div data-bbox="618 577 1409 1612"><p>The photograph shows the interior of a white, arched structure with multiple vertical ridges. Red arrows point from two labels to specific ridges: 'Crest Corrugations (H₁)' points to a taller ridge, and 'Crest Sub-Corrugations (H₂)' points to a shorter ridge. Below the photo, a diagram illustrates the height comparison. It shows two vertical red lines. The left line is labeled H₁ and the right line is labeled H₂. The line for H₁ is taller than the line for H₂. Below these lines, the text $H_1 > H_2$ is written in red. Small red arrows point from the labels H₁ and H₂ to their respective lines.</p></div>


Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>each crest sub-corrugation terminating at an elevation lower than the top of the chamber,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations that terminate below the top of the chamber. <i>See, e.g., Ex. 2005 at 1.</i></p> 

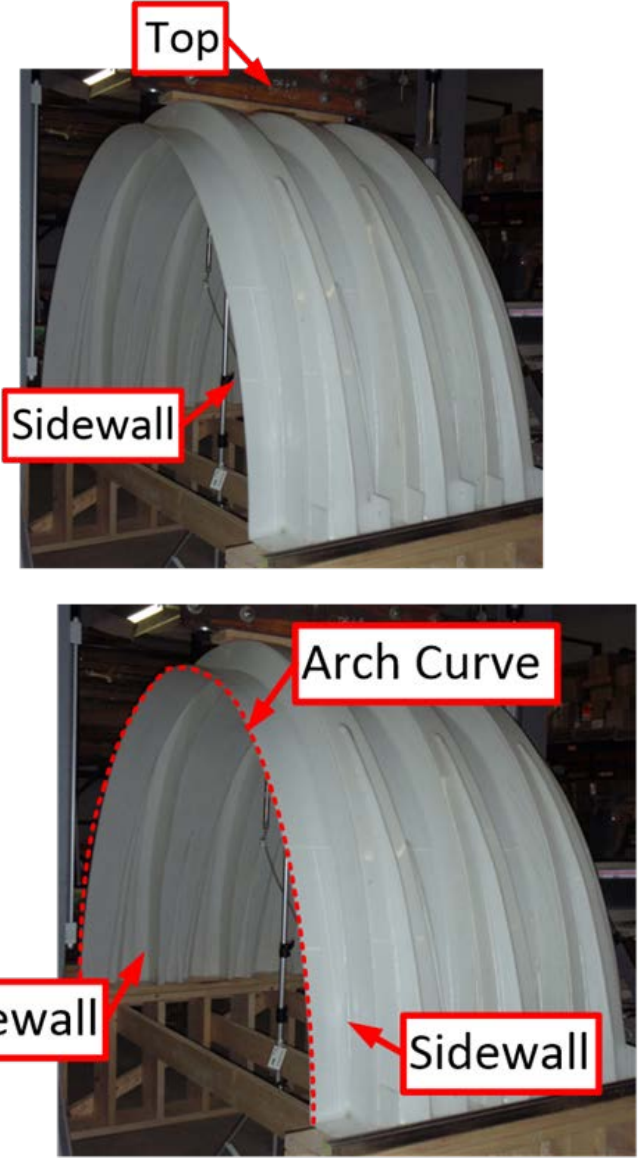
Claim 19 of the '583 Patent	StormTech's Prototype Chamber
<p>wherein the crest sub-corrugations extend about one quarter to two-thirds of a height of the chamber.</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations running upward from the base along crest corrugations and extending approximately two-thirds the height of the chamber. <i>See, e.g., Ex. 2005 at 1.</i></p> <div data-bbox="727 621 1252 1171"></div> <div data-bbox="743 1339 1273 1881"></div>

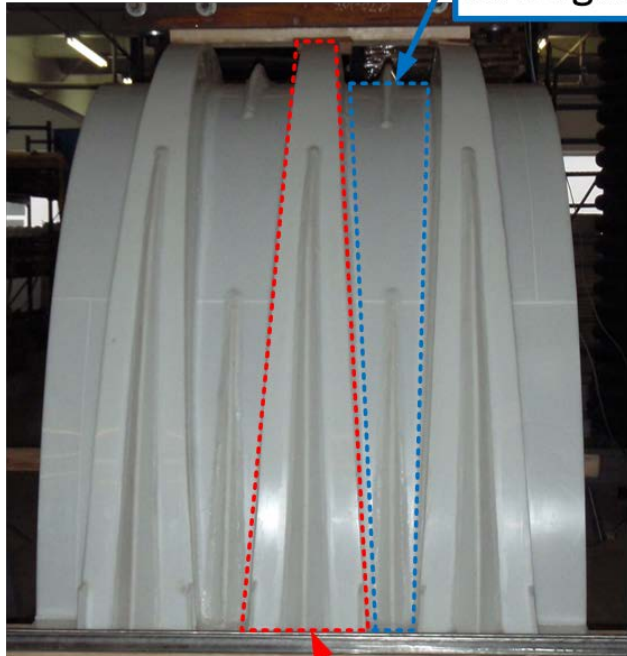
14. Claim 20

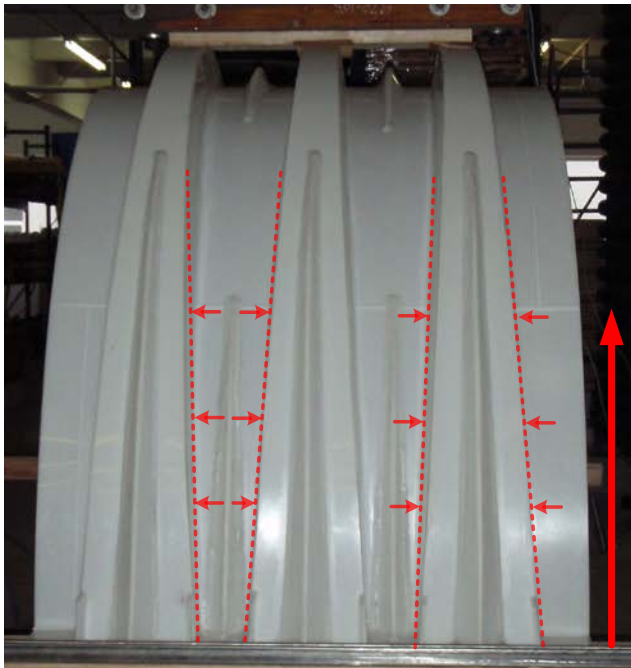
Claim 20 of the '583 Patent	StormTech's Prototype Chamber
<p>20. A chamber, comprising:</p>	<p>StormTech's prototype is a stormwater collection chamber. Ex. 2005 at 1.</p> 

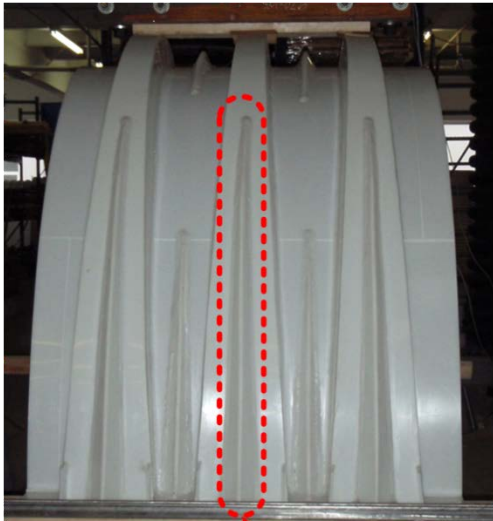
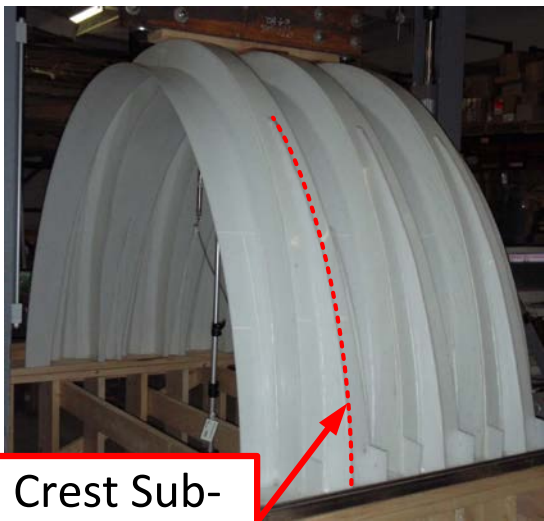
Claim 20 of the '583 Patent	StormTech's Prototype Chamber
<p>opposing side bases running generally parallel to a chamber length for supporting the chamber;</p>	<p>The StormTech prototype chamber includes two opposing side bases, each having a horizontal flange. <i>See, e.g., Ex. 2005 at 1.</i></p> <div data-bbox="724 537 1273 1062"></div> <div data-bbox="734 1096 1279 1619"></div>

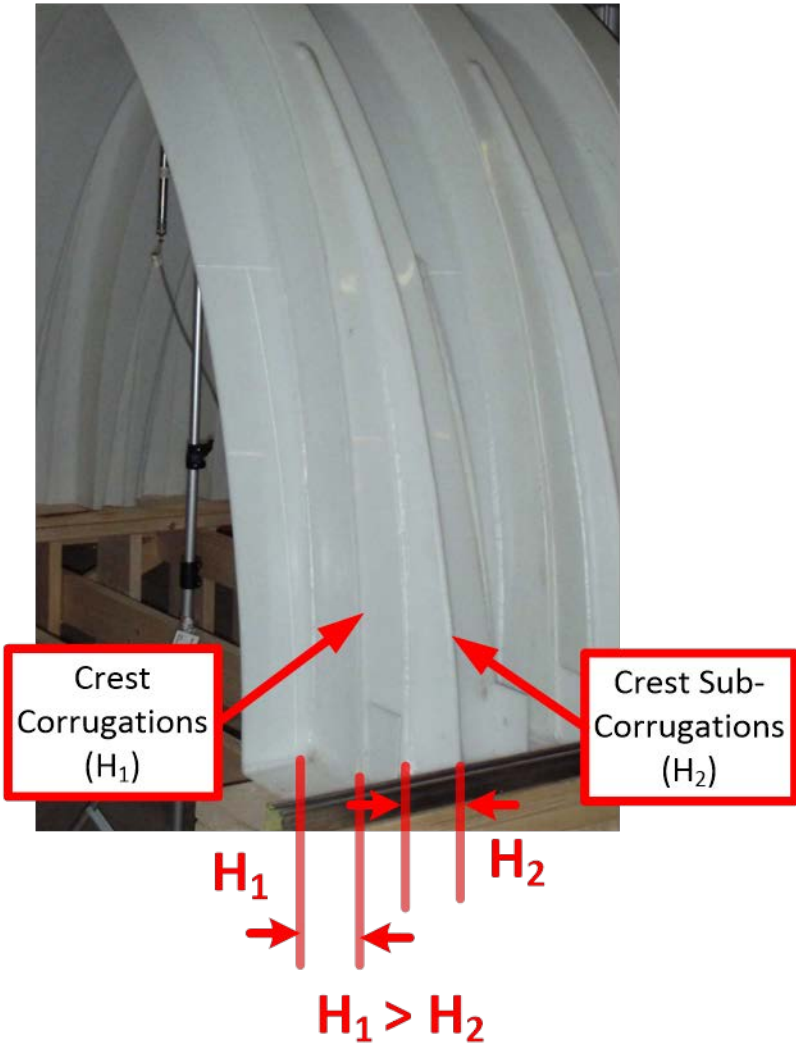
Claim 20 of the '583 Patent	StormTech's Prototype Chamber
a chamber top;	<p data-bbox="613 373 1300 457">The StormTech prototype chamber includes a chamber top. <i>See, e.g.,</i> Ex. 2005 at 1.</p> <div data-bbox="716 489 1295 1115"><p data-bbox="841 499 948 573">Top</p></div>


Claim 20 of the '583 Patent	StormTech's Prototype Chamber
<p>sidewalls running from the opposing side bases to the chamber top, wherein the sidewalls and top form an arch-curve;</p>	<p>The StormTech prototype chamber includes two opposing side bases extending to the chamber's top and forming an arch-curve. <i>See, e.g., Ex. 2005 at 1.</i></p>  <p>The top photograph shows the StormTech prototype chamber, a white, curved structure. A red arrow points to the top edge, labeled 'Top'. Another red arrow points to the side wall, labeled 'Sidewall'.</p> <p>The bottom photograph shows the same chamber from a different angle. A red dashed line outlines the arch curve, labeled 'Arch Curve'. Two red arrows point to the side walls, both labeled 'Sidewall'.</p>

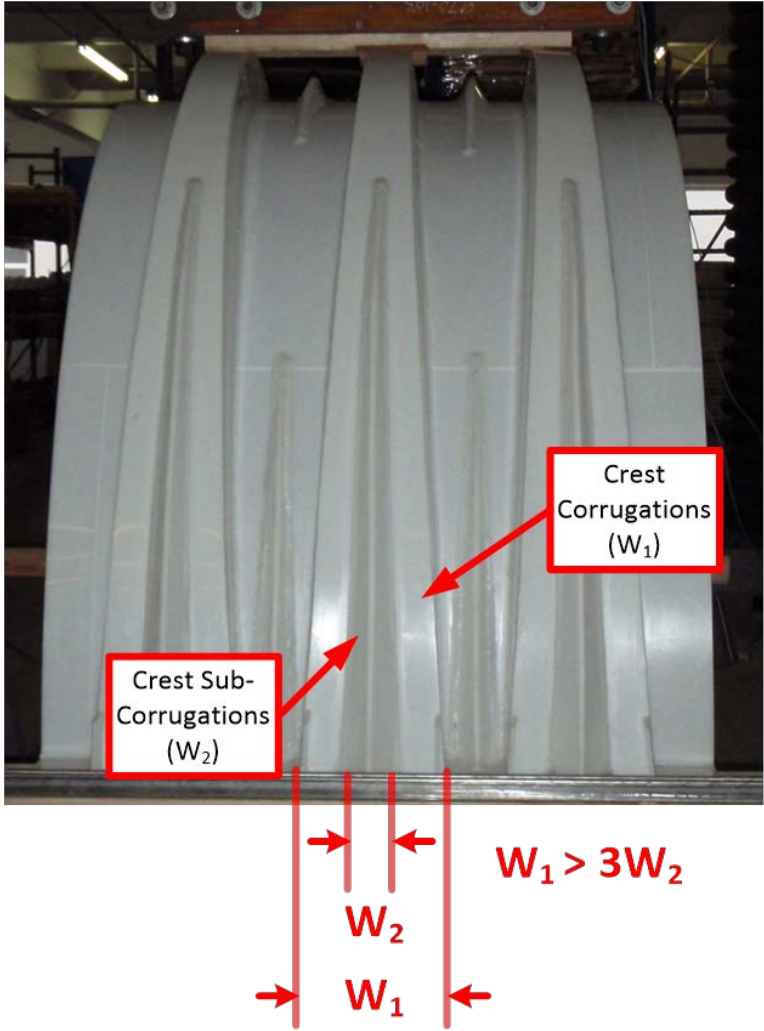
Claim 20 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of alternating crest corrugations and valley corrugations running transverse to the length of the chamber along the arch curve of the chamber,</p>	<p>The StormTech prototype chamber includes multiple alternating valley corrugations and crest corrugations, running along the arch-curve perpendicular to the base. <i>See, e.g.,</i> Ex. 2005 at 2.</p> <div data-bbox="662 575 1360 1482"><p>The photograph shows a white, curved structure with multiple vertical ridges and grooves. A blue dashed line and a blue arrow point to a groove, labeled 'Valley Corrugation'. A red dashed line and a red arrow point to a ridge, labeled 'Crest Corrugation'.</p></div>

Claim 20 of the '583 Patent	StormTech's Prototype Chamber
<p>wherein the crest corrugations decrease in width with elevation from the opposing side bases, and the valley corrugations increase in width with elevation from the opposing side bases, as width is measured in a direction parallel to the chamber length; and</p>	<p>The StormTech prototype chamber includes crest corrugations that decrease in width as they extend away from the base, and valley corrugations that increase in width as they extend away from the base. <i>See, e.g.</i>, Ex. 2005 at 2.</p> <div data-bbox="639 617 1380 1281"><p data-bbox="1279 856 1380 1264">Increasing Distance from Base</p></div>


Claim 20 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of crest sub-corrugations, each sub-corrugation running upwardly from an opposing side base and along a portion of the arch-curve of a crest corrugation,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations running upward from the base along crest corrugations. <i>See, e.g., Ex. 2005 at 1-2.</i></p> <div data-bbox="745 533 1282 1180"><p data-bbox="1031 1060 1282 1180">Crest Sub-Corrugations</p></div> <div data-bbox="722 1213 1291 1797"><p data-bbox="722 1661 1008 1797">Crest Sub-Corrugations</p></div>



Claim 20 of the '583 Patent	StormTech's Prototype Chamber
<p>each sub-corrugation having a height less than a local height of the crest corrugation with which the sub-corrugation is associated,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations having a height that is less than the local height of the crest corrugation. <i>See, e.g., Ex. 2005 at 1.</i></p>  <p>The photograph shows the interior of a white, arched structure with multiple vertical ridges. Two red arrows point from labels to specific ridges: 'Crest Corrugations (H₁)' points to a taller ridge, and 'Crest Sub-Corrugations (H₂)' points to a shorter ridge. Below the photo, a diagram illustrates the height difference with vertical lines and arrows. The taller line is labeled H₁ and the shorter line is labeled H₂. The text $H_1 > H_2$ is written below the diagram.</p>


Claim 20 of the '583 Patent	StormTech's Prototype Chamber
each crest sub-corrugation terminating at an elevation lower than the top of the chamber,	<p>The StormTech prototype chamber includes multiple crest sub-corrugations that terminate below the top of the chamber. <i>See, e.g., Ex. 2005 at 1.</i></p> 

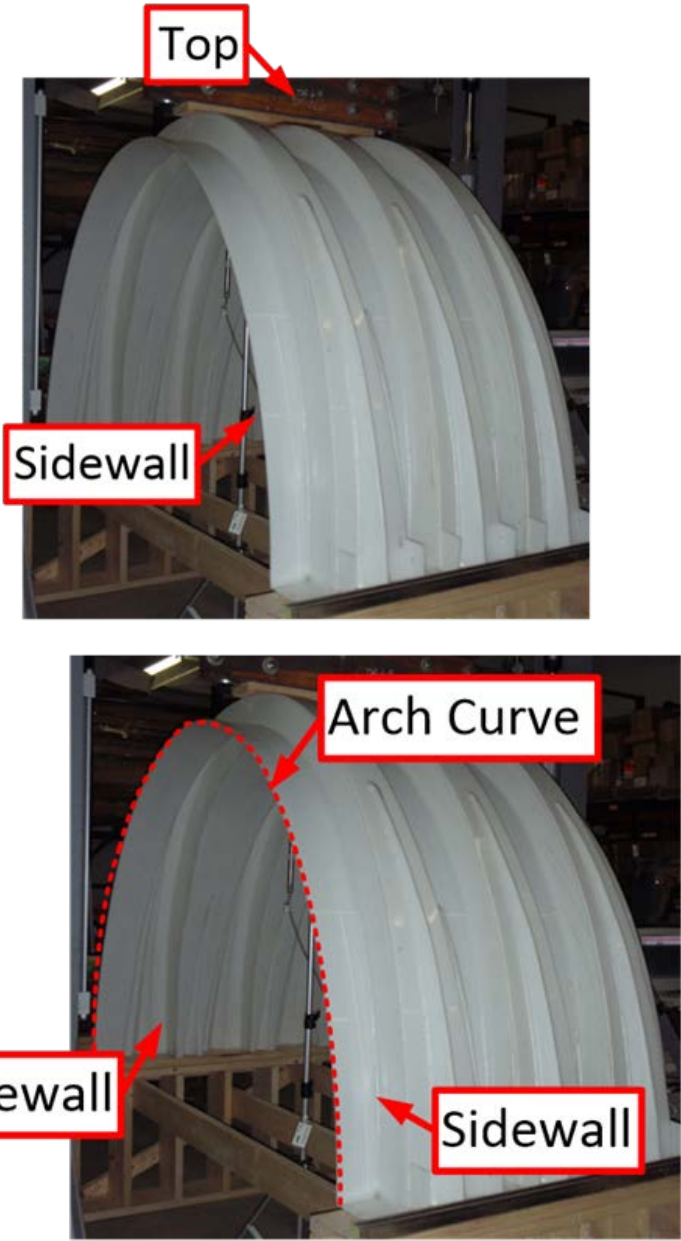
Claim 20 of the '583 Patent	StormTech's Prototype Chamber
<p>wherein a maximum width of each crest sub-corrugation is no more than one-third of a local width of the associated crest corrugation.</p>	<p>The StormTech prototype chamber includes crest sub-corrugations that are no more than one-third of the width of the associated crest corrugations. <i>See, e.g., Ex. 2005 at 2.</i></p>  <p>The photograph shows a series of vertical, white, corrugated panels. Two red arrows point to specific features: one points to a narrow, vertical ridge labeled 'Crest Sub-Corrugations (W₂)' and the other points to a wider, vertical ridge labeled 'Crest Corrugations (W₁)'. Below the photograph, a diagram illustrates the width relationship. It shows two vertical lines representing the widths. The wider line is labeled W₁ and the narrower line is labeled W₂. The diagram includes the inequality $W_1 > 3W_2$ in red text, indicating that the width of the crest corrugation is greater than three times the width of the crest sub-corrugation.</p>

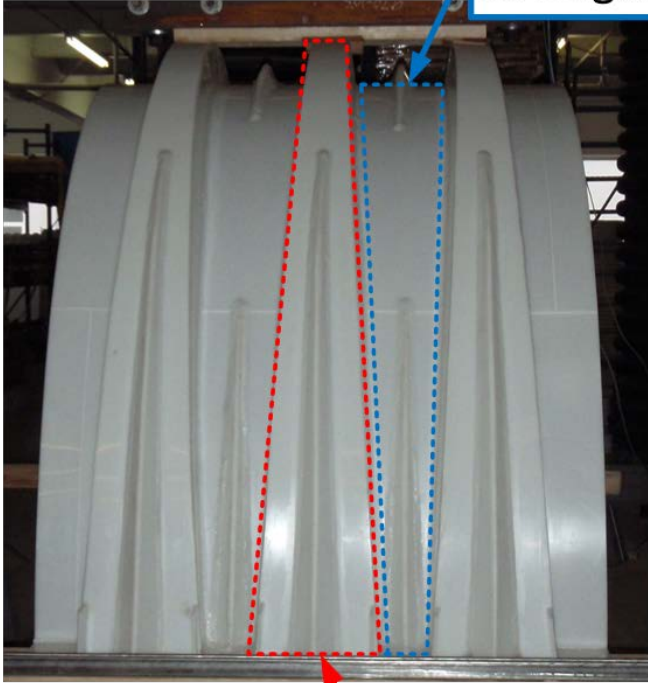
15. Claim 21

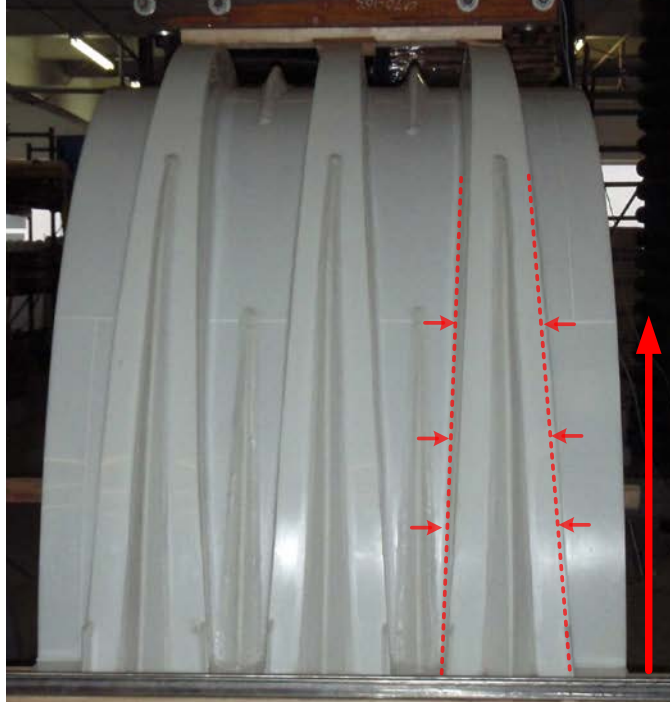
Claim 21 of the '583 Patent	StormTech's Prototype Chamber
21. A chamber, comprising:	<p>StormTech's prototype is a stormwater collection chamber. Ex. 2005 at 1.</p> 

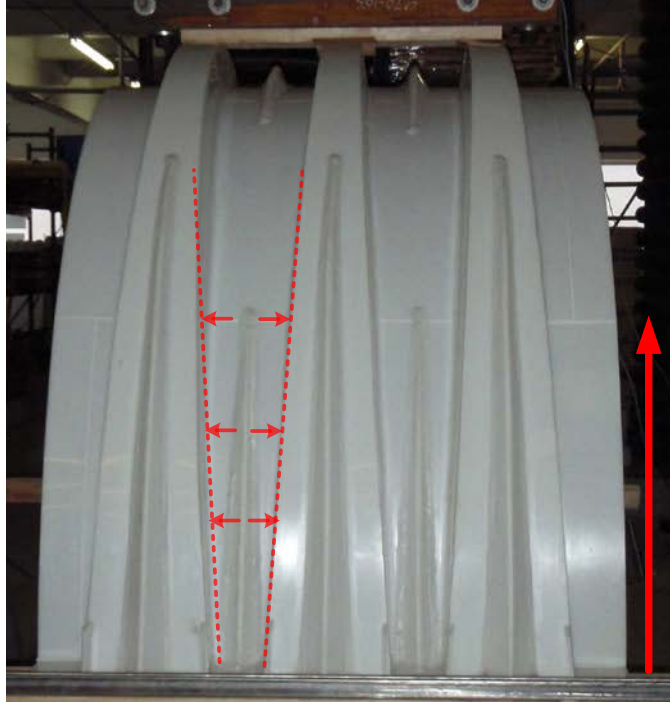
Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>opposing side bases running generally parallel to a chamber length for supporting the chamber;</p>	<p>The StormTech prototype chamber includes two opposing side bases, each having a horizontal flange. <i>See, e.g., Ex. 2005 at 1.</i></p> <div data-bbox="727 537 1308 1062"></div> <div data-bbox="737 1098 1284 1619"></div>

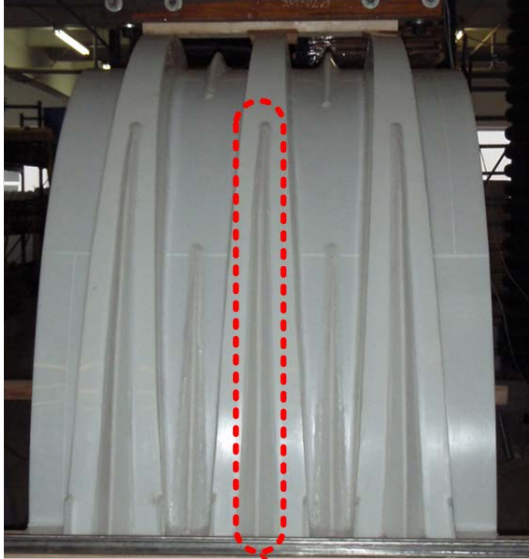
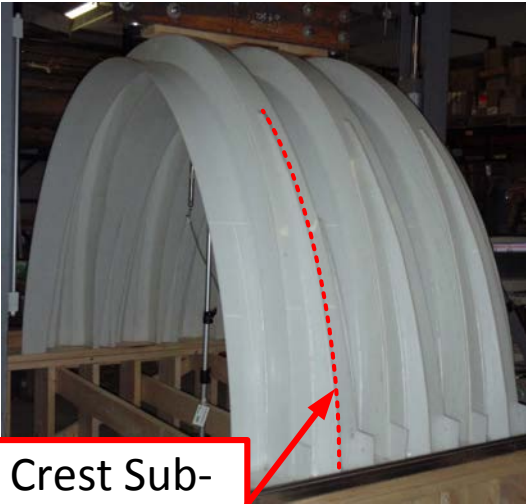
Claim 21 of the '583 Patent	StormTech's Prototype Chamber
a chamber top;	<p data-bbox="618 373 1300 457">The StormTech prototype chamber includes a chamber top. <i>See, e.g.</i>, Ex. 2005 at 1.</p> <div data-bbox="695 489 1321 1171"><p data-bbox="829 489 946 583">Top</p></div>

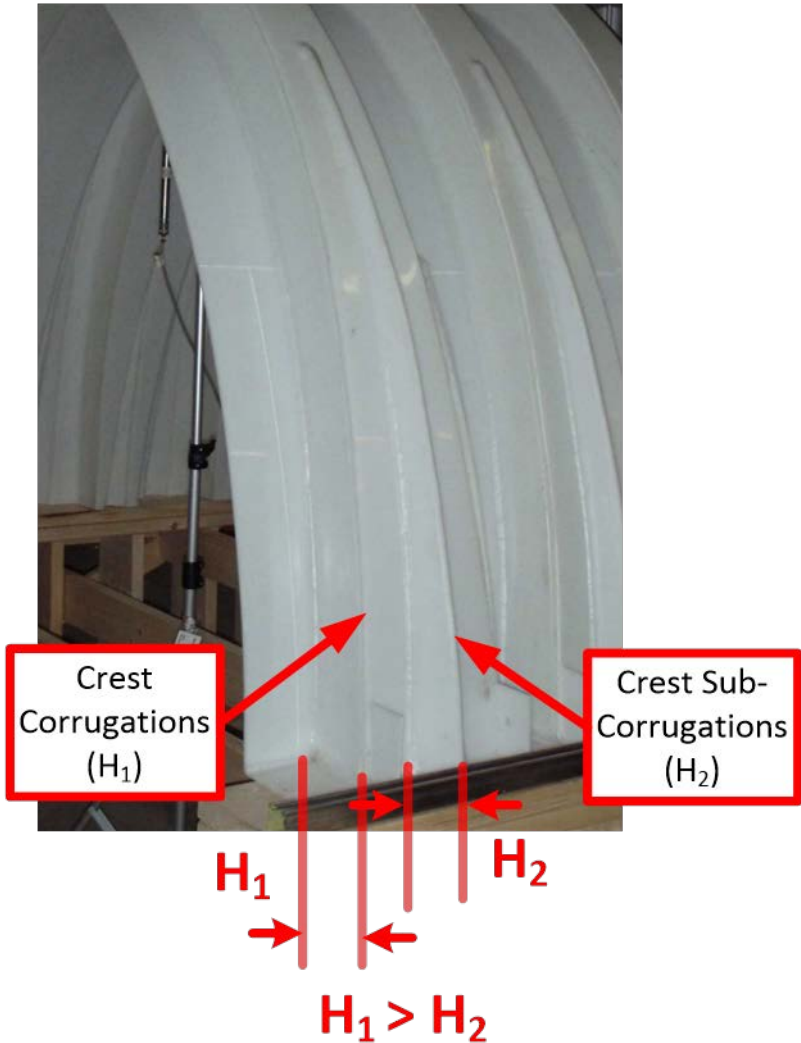
Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>sidewalls running from the opposing side bases to the chamber top, wherein the sidewalls and top form an arch-curve;</p>	<p>The StormTech prototype chamber includes two opposing side bases extending to the chamber's top and forming an arch-curve. <i>See, e.g., Ex. 2005 at 1.</i></p>  <p>The top photograph shows a perspective view of the prototype chamber, which is a semi-circular structure made of white, curved panels. A red arrow points to the top edge, labeled 'Top'. Another red arrow points to one of the curved panels, labeled 'Sidewall'.</p> <p>The bottom photograph shows a similar view of the prototype chamber. A red dotted line traces the arch-curve of the top and sidewalls, labeled 'Arch Curve'. Two red arrows point to the curved panels, both labeled 'Sidewall'.</p>


Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of alternating crest corrugations and valley corrugations running transverse to the length of the chamber along the arch curve of the chamber,</p>	<p>The StormTech prototype chamber includes multiple alternating valley corrugations and crest corrugations, running along the arch-curve perpendicular to the base. <i>See, e.g.</i>, Ex. 2005 at 2.</p>  <p>Valley Corrugation</p> <p>Crest Corrugation</p>


Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>wherein the crest corrugations decrease in width with elevation from the opposing side bases, and</p>	<p>The StormTech prototype chamber includes crest corrugations that decrease in width as they extend away from the base. <i>See, e.g.</i>, Ex. 2005 at 2.</p> <div data-bbox="618 537 1404 1234"><p>Increasing Distance from Base</p></div>

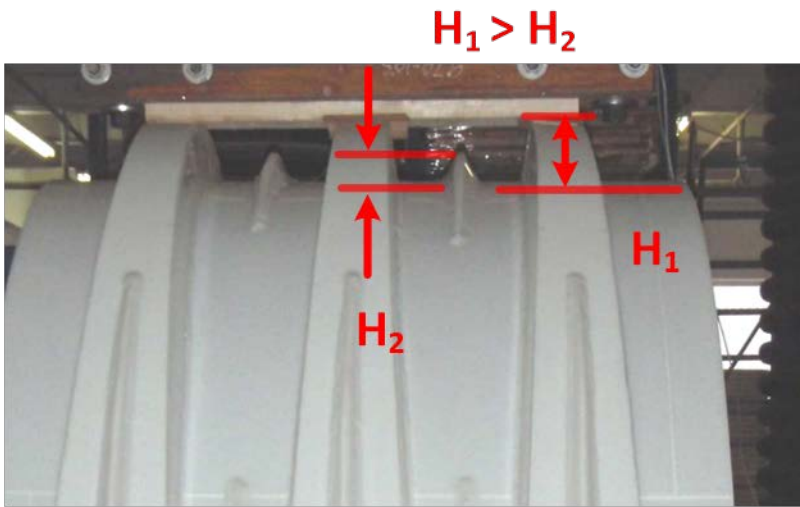
Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>the valley corrugations increase in width with elevation from the opposing side bases, as width is measured in a direction parallel to the chamber length;</p>	<p>The StormTech prototype chamber includes valley corrugations that increase in width as they extend away from the base. <i>See, e.g.</i>, Ex. 2005 at 2.</p> <div data-bbox="618 537 1404 1234"><p data-bbox="1300 779 1404 1213">Increasing Distance from Base</p></div>


Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of crest sub-corrugations, each crest sub-corrugation running upwardly from an opposing side base and along a portion of the arch-curve of a crest corrugation,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations running upward from the base along crest corrugations. <i>See, e.g.,</i> Ex. 2005 at 1-2.</p> <div data-bbox="727 537 1252 1092"></div> <div data-bbox="734 1266 1286 1831"><div data-bbox="734 1703 1010 1831">Crest Sub-Corrugations</div></div>

Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>each crest sub-corrugation having a height less than a local height of the crest corrugation with which the crest sub-corrugation is associated,</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations having a height that is less than the local height of the crest corrugation. <i>See, e.g., Ex. 2005 at 1.</i></p>  <p>The photograph shows the interior of a white, arched structure with vertical ridges. A red box labeled 'Crest Corrugations (H₁)' has an arrow pointing to a large ridge. Another red box labeled 'Crest Sub-Corrugations (H₂)' has an arrow pointing to a smaller ridge. Below the photo, a diagram shows two vertical lines representing heights. The left line is labeled H₁ and the right line is labeled H₂. Arrows indicate the height of each line, and the text 'H₁ > H₂' is written below them.</p>

Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>each crest sub-corrugation terminating at an elevation lower than the top of the chamber; and</p>	<p>The StormTech prototype chamber includes multiple crest sub-corrugations that terminate below the top of the chamber. <i>See, e.g.,</i> Ex. 2005 at 1.</p> 

Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>a plurality of valley sub-corrugations, each valley sub-corrugation running downwardly from the top of the chamber and along part or all of a valley corrugation,</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that run along the valley corrugations and down from the top of the chamber. <i>See, e.g., Ex. 2005 at 2.</i></p> <p>Valley Sub-Corrugations</p> 

Claim 21 of the '583 Patent	StormTech's Prototype Chamber
<p>each valley sub-corrugation having a height less than a depth of the valley corrugation with which the valley sub-corrugation is associated,</p>	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that have a height less than the depth of the valley corrugation. <i>See, e.g., Ex. 2005 at 2.</i></p> <div data-bbox="617 588 1412 1092"></div> <div data-bbox="625 1113 868 1291">Valley Sub-Corrugation Height (H_2)</div> <div data-bbox="909 1113 1323 1291">Valley Corrugation Depth and Crest Corrugation Height (H_1)</div>

Claim 21 of the '583 Patent	StormTech's Prototype Chamber
each valley sub-corrugation terminating at an elevation lower than the top of the chamber.	<p>The StormTech prototype chamber includes multiple valley sub-corrugations that terminate at an elevation lower than the top of the chamber. <i>See, e.g.</i>, Ex. 2005 at 2.</p> 

B. The Inventors Reduced to Practice Claims 1-7, 9, 11, 13, 15, 16, and 19-21 Before *Cobb*

Because the evidence used to prove conception of claims 1-7, 9, 11, 13, 15, 16, and 19-21 includes a working model of the claimed stormwater chamber, it also demonstrates actual reduction to practice of these claims.

Reduction to practice requires the prior inventor to have “constructed an embodiment or performed a process that met all the claim limitations,” and to have “determined that the invention would work for its intended purpose.” *Fox Grp., Inc. v. Cree, Inc.*, 700 F.3d 1300, 1305 (Fed. Cir. 2012) (quoting *Teva Pharm. Indus. Ltd. v. AstraZeneca Pharm. LP*, 661 F.3d 1378, 1383 (Fed. Cir. 2011)).

In this case, as shown in the chart above in Section V.A, the inventors built a working prototype that met all the limitations of claims 1-7, 9, 11, 13, 15, 16, and 19-21. Ex. 2008 ¶ 8; Ex. 2009, ¶ 8. Further, over the course of months of testing prior to February 13, 2008, the inventors recognized that the prototype chamber would work for its intended purpose as a stormwater chamber. Ex. 2008 ¶ 10; Ex. 2009, ¶ 10. Particularly, in October 2007, the inventors installed the prototype design depicted throughout the chart above in Section V.A at a test facility. Ex. 2008 ¶ 9; Ex. 2009, ¶ 9; Ex. 2006 at 1-9. The installation process included excavating soil, placing the prototype chamber in the excavated ground, covering the prototype with gravel and soil, and compacting the gravel and soil. Ex. 2008 ¶ 9; Ex. 2009, ¶ 9; Ex. 2006 at 1-9.

After the inventors completed the installation process, they tested the prototype chamber by driving a weighted wheel loader over the buried chambers. Ex. 2008 ¶ 10; Ex. 2009, ¶ 10; Ex. 2006 at 10. Based on the test, the inventors recognized that the prototype would function as a stormwater chamber, as claimed

in the '583 patent. Ex. 2008 ¶ 10; Ex. 2009, ¶ 10. Moreover, as shown, the chamber supported the load of the wheel loader. Ex. 2006 at 10. Because the inventors recognized during testing that the prototype was fit to use as a stormwater chamber, its intended use, they completed actual reduction to practice of the invention of claims 1-7, 9, 11, 13, 15, 16, and 19-21.

Accordingly, the inventors demonstrated conception and actual reduction to practice prior to *Cobb*'s earliest priority date, i.e., February 13, 2008. As a result, *Cobb* cannot be used to demonstrate unpatentability of claims 1-7, 9, 11, 13, 15, 16, and 19-21 of the '583 patent. Therefore, the Board should not institute Grounds 1-4 for these claims, all of which rely on *Cobb*.

VI. The Board Should Exercise Its Discretion to Deny Redundant Grounds That Are Not Distinguished

Petitioner asserts four alternative invalidity grounds (Grounds 1-4) using a disjointed, kitchen-sink approach that provides no meaningful distinction between each ground. Grounds 1, 2, and 4 apply the same references in partial and full combination (“vertically redundant”), while Grounds 1, 3, and 4 apply another set of the same references in partial and full combination (“vertically redundant”). Grounds 2 and 3 are distinct and separate alternatives (“horizontally redundant”).

The Board has rejected similarly redundant grounds in the past. *See Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co.*, CBM2012-00003, Paper 7 at 3 (P.T.A.B. Oct. 25, 2012). Moreover, “multiple grounds, which are presented in a

redundant manner by a petitioner who makes no meaningful distinction between them, are contrary to the regulatory and statutory mandates, and therefore are not all entitled to consideration.” *Id.* at 2. Additionally, the Board has consistently declined to consider redundant prior art, particularly when the petitioner offers no meaningful distinction between the different prior art references. *See, e.g., Riverbed Tech., Inc. v. Parallel Networks, LLC*, IPR2014-01398, Paper 11 at 16-17 (P.T.A.B. Feb. 27, 2015) (declining to institute on a particular ground when it was “provided without explanation as to why it is better than or different from the [other] asserted grounds”); *Conopco, Inc. v. Procter & Gamble Co.*, IPR2013-00505, Paper 9 at 17 (P.T.A.B. Feb. 12, 2014) (“Petitioner identifies no relative strengths or weaknesses in the prior art disclosures as they relate to the limitations of those claims.”); *Berk-Tek LLC v. Belden Techs. Inc.*, IPR2013-00057, Paper 21 at 5 (P.T.A.B. May 14, 2013) (“[A]llowing multiple grounds without meaningful distinction by the petitioner is contrary to the legislative intent.”).

In this case, Petitioner never weighs or explains the relative differences between each ground. Petitioner provides no reasoning as to the relative strength of the grounds, much less “why one reference more closely satisfies the claim limitation at issue in some respects than another reference, **and** vice versa,” or “why the reliance in part may be the stronger assertion as applied in certain instances **and** why the reliance in whole may also be the stronger assertion in other

instances.” *Liberty Mut.*, CBM2012-00003, Paper 7 at 3. Instead of explaining the relative differences between *Cobb*, *Fouss*, and *Ellis*, the petition merely states varying redundant combinations in each ground, without any reasonable explanation for doing so. Accordingly, the Board should find that Petitioner has asserted multiple redundant grounds.

VII. Conclusion

For the foregoing reasons, StormTech respectfully requests that the Board deny the petition for IPR.

The undersigned welcomes a telephone call should the Office have any requests or questions. If there are any fees due in connection with the filing of this paper, please charge the required fees to our deposit account no. 06-0916.

Respectfully submitted,

Dated: May 1, 2017

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CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that the foregoing **Patent Owner's Preliminary Response to Petition for *Inter Partes* Review of U.S. Patent No. 8,672,583** contains 9,602 words, excluding those portions identified in 37 C.F.R. § 42.24(a), as measured by the word-processing system used to prepare this paper.

/Aaron L. Parker/

Aaron L. Parker

CERTIFICATE OF SERVICE

The undersigned hereby certifies that copies of the foregoing **Patent Owner's Preliminary Response to Petition for *Inter Partes* Review of U.S. Patent No. 8,672,583** and **Exhibits 2005-2009** were served electronically via email on May 1, 2017, in its entirety on the following::

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