

EXHIBIT D-0
Initial Invalidity Chart for U.S. Patent No. 11,826,217

US 11,826,217	Prior Art
Independent Claim 17. A dental mouthpiece comprising:	See Claim 19 of Ex. A-0. Nguyen '232: FIG. 1A, Abstract Hirsch 2: FIG. 2, Abstract Hirsch: FIG. 1, Abstract
Limitation 17(a): a main body portion having a first end and a second end, the main body portion comprising:	See Claim 19 of Ex. A-0. Nguyen '232: FIG. 1B Ref. 110 Hirsch 2: FIG. 4, Ref. 280 Hirsch: FIG. 19A, Ref. 280
Limitation 17(b): an anterior wall,	See Claim 19 of Ex. A-0. Nguyen '232: FIG. 1B, "An exemplary main body portion 110, when placed in a mouth, may include an anterior wall facing the front of the mouth (e.g., the side with slit 170) and a posterior wall facing the back of the mouth. The two walls may connect at a superior wall and an inferior wall forming a body that is at least partially enclosed." Hirsch 2: FIG. 4, Refs. 310, 330 Hirsch: FIG. 19A, Refs. 310, 330
Limitation 17(c): a posterior wall spaced at a distance from the anterior wall, wherein an interior space corresponding to the distance between the anterior wall and the posterior wall is defined by the anterior wall and the posterior wall,	See Claim 19 of Ex. A-0. Nguyen '232: FIG. 1B, "An exemplary main body portion 110, when placed in a mouth, may include an anterior wall facing the front of the mouth (e.g., the side with slit 170) and a posterior wall facing the back of the mouth. The two walls may connect at a superior wall and an inferior wall forming a body that is at least partially enclosed."

	Hirsch 2: FIG. 8, Refs. 320, 340 Hirsch: FIG. 19A, Refs. 320, 340
Limitation 17(d): at least one connector that connects the anterior wall to the posterior wall within the interior space,	Nguyen ‘232: FIGS. 1B-1C, 6B, front nose of suction connector 120 Hirsch 2: FIG. 11, Ref. 365, “The flaps 310, 320, 330, 340 all extend from and share a common, central spine 365.” Hirsch: FIG. 19E, Ref. 365, “The flaps 320, 330, 340, 350 all extend from and share a common, central spine 365.” Other prior art teaches such a connector, e.g., Black teaches transverse walls that meet this limitation.
Limitation 17(e): at least one intervening wall protruding from and extending along an edge of the anterior wall or the posterior wall, the at least one intervening wall having a span that extends partially across the distance of the interior space, and wherein an edge of the span of the at least one intervening wall has a plurality of alternating crests and troughs that extend different distances partially across the interior space, and	Hirsch 2: FIG. 6, 9: element 414. Nguyen ‘232: FIG. 1D, 3:40-54. To the extent Nguyen ‘232 fails to teach limitation 17(d), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of the above references with those taught below. The resulting combination would satisfy the requirements of the claimed invention. As a non-limiting example, Nguyen may be combined with Black. The mouthpiece of Nguyen ‘232 includes enclosed sidewalls with perforations. Black teaches open sided mouthpieces and the benefits thereof. In combination, Nguyen would include cut open sidewalls that include two intervening walls with alternating crests and troughs. Nyugen ‘232 may also be combined with Hirsch 2 to replace the sidewalls with two partial sidewalls having channels like the channels 416. It would have also been obvious to replace the sidewalls of Nguyen ‘232 with a second bridge structure 180, as adding a second bridge structure would be a mere duplication of parts. <i>In reHarza</i>, 274 F.2d 669, 124 USPQ 378 (CCPA 1960); MPEP 2144.04(VI)(B).

	To the extent Hirsch fails to teach limitation 17(d), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of the above references with those taught below. The resulting combination would satisfy the requirements of the claimed invention. As a non-limiting example, Hirsch may be combined with Nguyen ‘232. The mouthpiece of Hirsch includes four flaps that tend to collapse under suction. Nguyen ‘232 teaches a bridge structure 180 that prevents collapse under suction but still allows for passage of fluid. In combination, Hirsch would include a bridge structure that includes an intervening wall with alternating crests and troughs.
Limitation 17(f): a neck extending from the second end of the main body portion, wherein a width of the neck is less than a width of the main body portion at the first end;	Nguyen ‘232: FIG. 1B; “rectangular portion”; 4:4-11. Hirsch 2: FIG. 4, isthmus 300 Hirsch: FIG. 19E, isthmus 300
Limitation 17(g): a suction connector portion connected to the first end of the main body portion, the suction connector portion further configured to connect the interior space to a vacuum suction source; and	See Claim 19 of Ex. A-0. Nguyen ‘232: FIG. 1B, Ref. 120 Hirsch 2: FIG. 1, Ref. 570 Hirsch: FIG. 18A, Ref. 570
Limitation 17(h): a cheek retractor portion connected to the neck that extends from the second end of the main body portion, wherein the width of the neck is less than a width of the cheek retractor portion.	See Claim 19 of Ex. A-0. Nguyen ‘232: FIG. 1B, Ref. 130 Hirsch 2: FIG. 2, Ref. 240 Hirsch: FIG. 19A, Ref. 290
Claim 18. The mouthpiece of claim 17, wherein the at least one intervening wall includes a plurality of portions of varying heights relative to a longitudinal axis of the mouthpiece.	See Claim 17.
Claim 19. The mouthpiece of claim 17, further comprising a bite block integrated to the suction connector portion, wherein the bite block provides crush-resistance during biting by a patient.	Hirsch: FIG. 19A, bite piece 250 Black: FIG. 2, Ref. 10

	KR101217041: FIG. 1, Ref. 30 KR101082826: FIGS. 2 and 3, [0029] “The tooth support section (120) is formed to extend a certain length forward from the insertion port (110), with interlocking grooves formed on the upper and lower sides, allowing the patient's upper and lower teeth to interlock,” KR100654392: FIG. 1, “The bite block (30)(30a) is provided between the tongue protection portion (20) and the tube connection portion (10), allowing easy securing in the oral cavity by being bitten by the user's teeth.” CN108042228: FIGS. 1 and 2, Ref. 2 CN105342717: FIGS. 1, 3, and 4 CN104490483: FIGS. 1 and 4 CN102631180: FIGS. 1, 3 and 4 Johnson: FIG. 1, Chin holder 18 Nguyen ‘232: FIG. 1B, Ref. 160 Hirsch 2: FIG. 2, Ref. 250 Hirsch: FIG. 19E, Ref. 250
Claim 20. The mouthpiece of claim 17, wherein the main body portion, the suction connector portion, and the cheek retractor portion are formed by injection-molding as one piece.	Hirsch ‘321: Abstract KR101082826: “[0032] The described mouse prop (100) is designed to be inserted into the oral cavity, made of synthetic materials such as clear silicone” KR100654392: FIG. 1, “The material may be synthetic resin (plastic) such as silicone or its equivalents, and is not limited to any specific material. Moreover, it is preferable to form the entire unit as a single piece”

	CN102631180: “The function is to thicken the glue position of the inner flow channel 7 so as not to pull the inner flow channel 7 apart when the mold of the tongue glue 14 is opened during the injection process.” Johnson: “The clamp body, handles and tongue are all integrally formed, preferably by injection molding, of a strong resilient and semi-rigid plastic.” Nguyen ‘232: Abstract Hirsch 2: “The intraoral device 200 is preferably molded out of a translucent (e.g., transparent), flexible, soft, elastic, resilient, biocompatible thermoplastic elastomer.” Hirsch: “The tongue and cheek retractor 22 is preferably produced by a gas-assist injection molding process in order to produce the internal vacuum channels described below.”
Claim 21. The mouthpiece of claim 17, wherein the suction connector portion comprises a cutout corresponding to a protrusion on a vacuum adapter to provide an interlocking fit.	See Claim 9 of Ex. C-0 Nguyen ‘232: FIG. 2C, Ref. 230 Hirsch 2: FIG. 3 Hirsch: FIG. 19E, Ref. 630
Claim 22. The mouthpiece of claim 17, where in the suction connector portion connects to the vacuum suction source, wherein activation of the vacuum suction source provides suction of fluids from the interior space of the main body portion.	Hirsch ‘321: FIG. 1, Abstract Black: FIG. 1, Abstract KR101217041: FIG. 1 KR101082826: FIGS. 2 and 3, Abstract KR100654392: FIG. 1, Abstract CN108042228: FIGS. 1 and 2

	CN105342717: FIGS. 1, 3, and 4 CN104490483: FIGS. 1 and 4 CN102631180: FIGS. 1 and 3 Nguyen '232: FIG. 1B, Ref. 120 Hirsch 2: FIG. 1, Ref. 570 Hirsch: FIG. 18A, Ref. 570
Claim 23. The mouthpiece of claim 22, wherein the activation of the vacuum suction source further draws fluids from an exterior of the main body portion into the interior space of the main body portion.	Hirsch '321: FIG. 1, Abstract Black: FIG. 1, Abstract KR101217041: FIG. 1 KR101082826: FIGS. 2 and 3, Abstract KR100654392: FIG. 1, Abstract CN108042228: FIGS. 1 and 2 CN105342717: FIGS. 1, 3, and 4 CN104490483: FIGS. 1 and 4 CN102631180: FIGS. 1 and 3 Johnson: FIG. 2, Abstract Nguyen '232: FIG. 1B, Ref. 120 Hirsch 2: FIG. 1, Ref. 570 Hirsch: FIG. 18A, Ref. 570

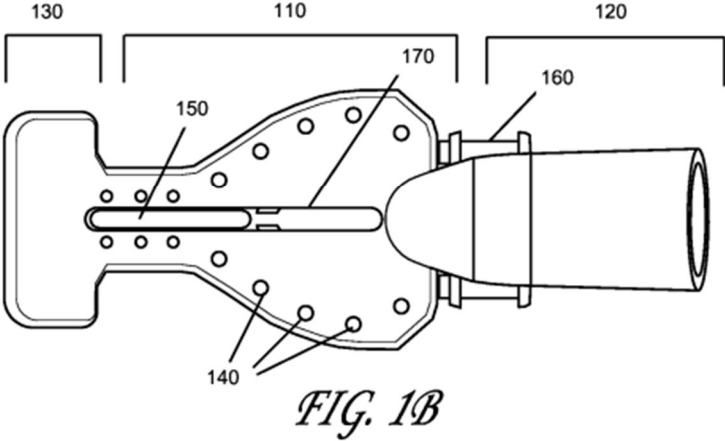
EXHIBIT D-1 (Nguyen or DM1 in View of One or two of the Skill of a PHOSITA, Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, or Isolite Mouthpiece)
Initial Invalidity Chart for U.S. Patent No. 11,826,217

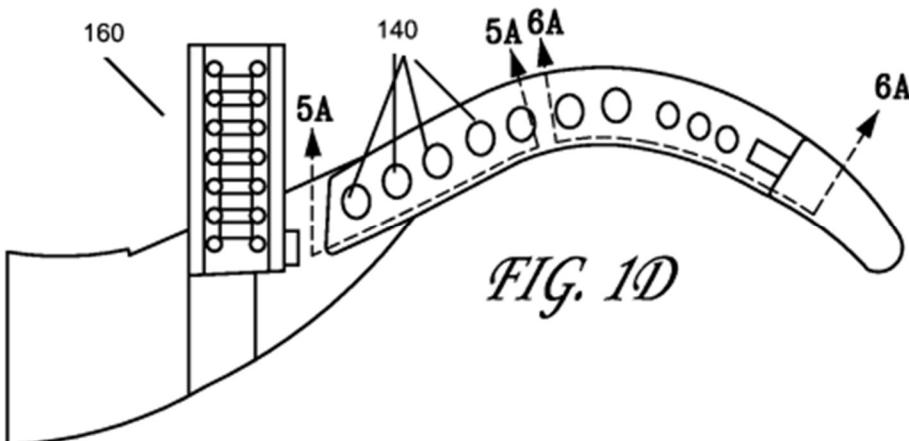
Ascentcare incorporates by reference the cover pleading to its Initial Invalidity Contentions. These Initial Invalidity Contentions, including these claim charts, are not an admission regarding claim scope or the accused products, and, in particular, that the accused products, including any current or past versions of these products, are covered by, or infringe the Asserted Claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by the Parties. In addition, these Initial Invalidity Contentions should not be taken as an admission that any of the asserted claims satisfy the requirements of 35 U.S.C. § 112. Where Ascentcare identifies portions of the prior art reference below, those identifications are intended to be exemplary in nature and are based on Ascentcare's investigation to-date. Ascentcare reserves the right to rely on un-cited portions of the reference to establish invalidity of the Asserted Claims.

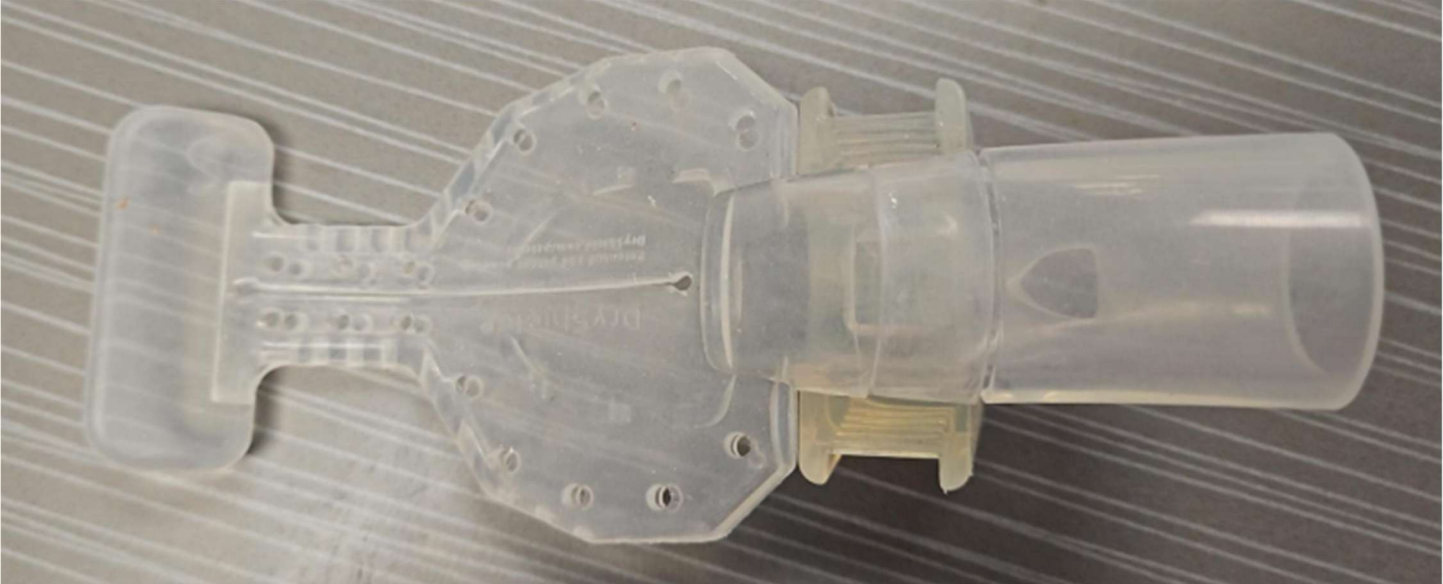
Pursuant to AIA 35 U.S.C. §§ 102 & 103 and as described in the cover pleading and shown below, Nguyen, Black, Hirsch, and Hirsch 2 were patented or described in a printed publication more than one year prior to the priority date of the '217 Patent, and therefore anticipates and/or renders obvious, either alone or in combination with the other prior art, the knowledge of one of ordinary skill in the art, or one or two of the references identified in the cover pleading and/or one or two of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 11,826,217.

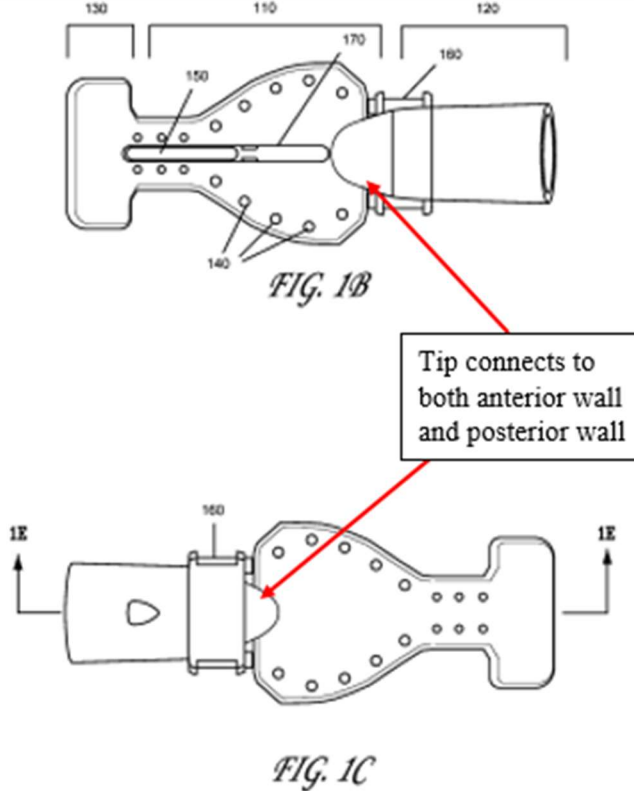
Pursuant to AIA 35 U.S.C. §§ 102 & 103 and as described in the cover pleading and shown below, AirBug, the Mr. Thirsty Mouthpiece, Isolite Mouthpiece, and DM1¹ were on sale or in public use more than one year prior to the priority date of the '217 Patent, and therefore anticipates and/or renders obvious, either alone or in combination with the other prior art, the knowledge of one of ordinary skill in the art, or one or two of the references identified in the cover pleading and/or one or two of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 11,826,217.

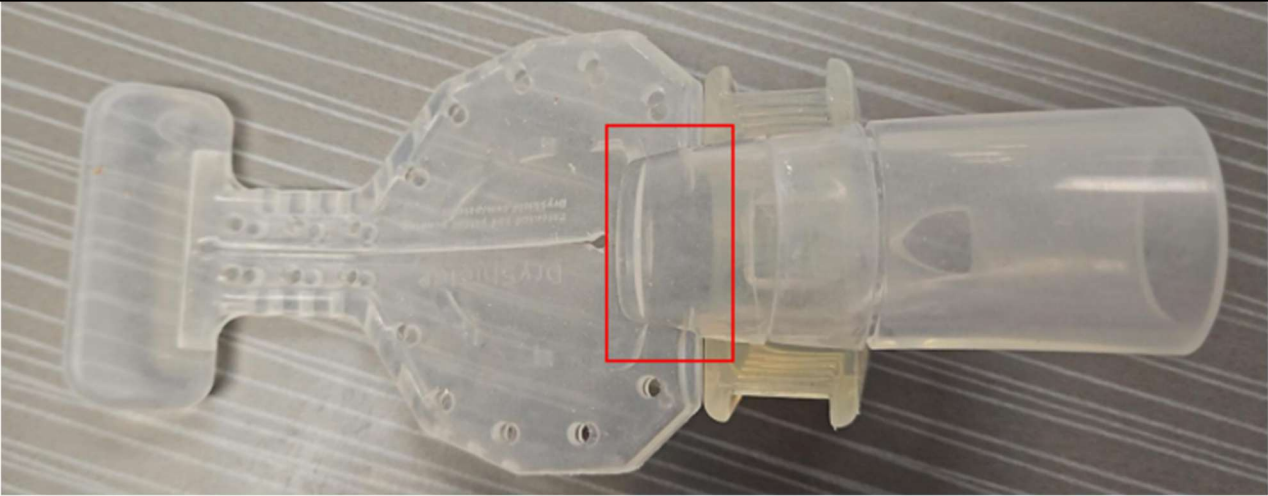
¹ It is Ascentcare's understanding that several of the embodying products discussed herein may have multiple embodiments over the years. Discovery is ongoing, and Ascentcare has issued subpoenas seeking the prior art embodiments. To the extent that Ascentcare currently relies on more current embodiments of these mouthpieces, upon information and belief, the differences in those embodiments are minor and do not affect the invalidity analysis. Ascentcare reserves the right to amend these contentions as discovery progresses. It is Ascentcare's understanding, for example that AirBug and Mr. Thirsty Mouthpiece are products embodying Black, and thus, any of the references to Black likewise support the Mr. Thirsty Mouthpiece, and vice versa. Likewise, the same analysis applies to the Isolite Mouthpiece, Hirsch and Hirsch 2. Further, it is Ascentcare's understanding that Solmetex contends that DM1 embodies Nguyen.

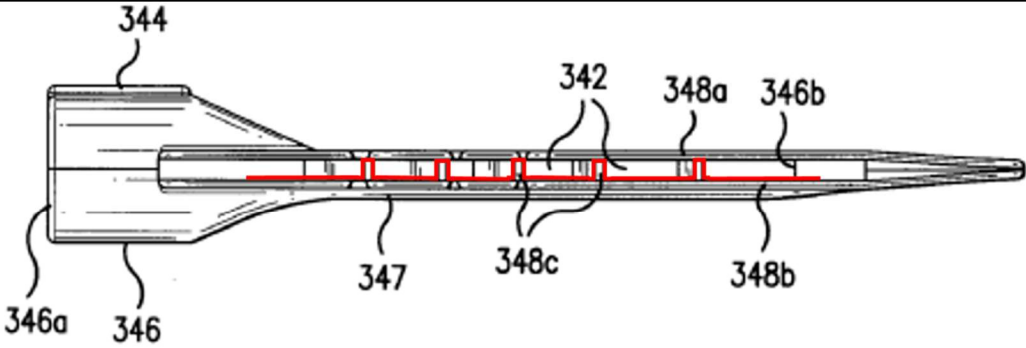
The '217 Patent	Exemplary Disclosures in the Prior Art
17[a] A dental mouthpiece comprising:	To the extent the preamble is limiting, each of the references discussed herein is a dental mouthpiece.
17[b] a main body portion having a first end and a second end, the main body portion comprising: an anterior wall, a posterior wall spaced at a distance from the anterior wall, wherein an interior space corresponding to the distance between the anterior wall and the posterior wall is defined by the anterior wall and the posterior wall,	Nguyen discloses a main body portion 110 with a first end connected to a suction connector portion 120 and a second end connected to a cheek retractor 130. Nguyen, FIG. 1B; 3:20-22. Nguyen discloses an anterior wall and a posterior wall spaced apart at a distance between the two walls. Nguyen, 3:37-54, 4:6-11, 1:58-60, FIGs. 1D-1E. Nguyen discloses a “pocket” that is “at least partially enclosed”. Nguyen, 1:58-60. Nguyen further discloses an interior of the pocket, which is an interior space, that is defined by the anterior wall and the posterior wall. Nguyen, 1:58-60, 3:36-54. 

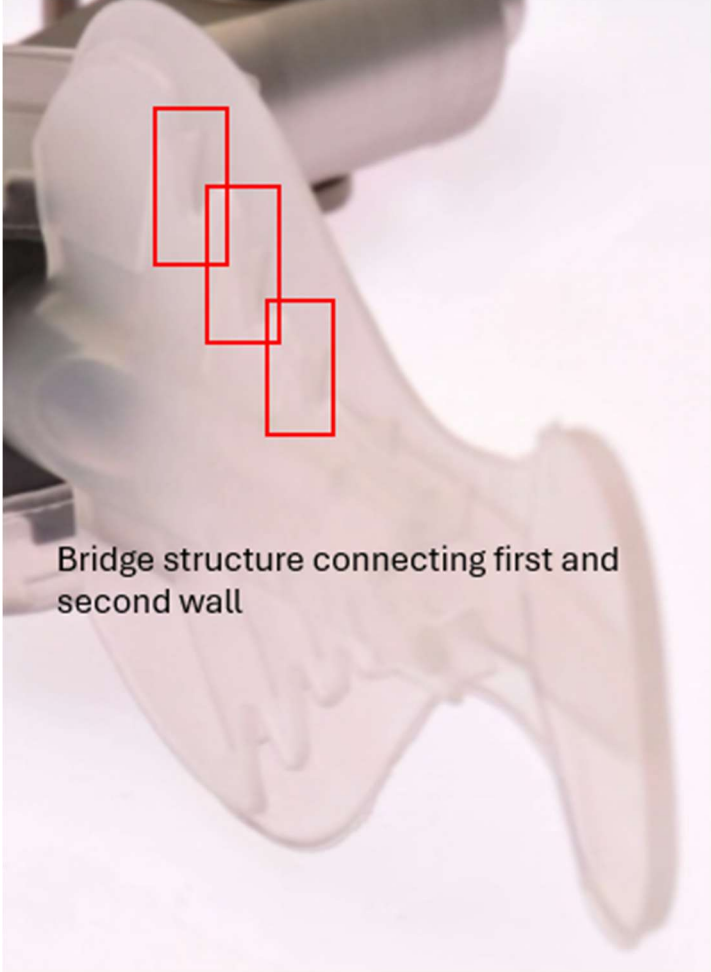
The '217 Patent	Exemplary Disclosures in the Prior Art
	 Also, the main body portion 110 is formed at the central part of a curve with the posterior wall formed outside the curve and the anterior wall formed inside the curve. Nguyen, 6:4-6. DM1 also discloses a “a main body portion having a first end and a second end, the main body portion comprising: an anterior wall, a posterior wall spaced at a distance from the anterior wall, wherein an interior space corresponding to the distance between the anterior wall and the posterior wall is defined by the anterior wall and the posterior wall.”

The '217 Patent	Exemplary Disclosures in the Prior Art
	
17[c] at least one connector that connects the anterior wall to the posterior wall within the interior space,	Nguyen teaches a tip in front of the suction connector that connects the anterior wall to the posterior wall. E.g., Nguyen, FIGs. 1B, 1C, 1E. Therefore, the tip in front of the suction connector is a connector connecting the anterior wall to the posterior wall.

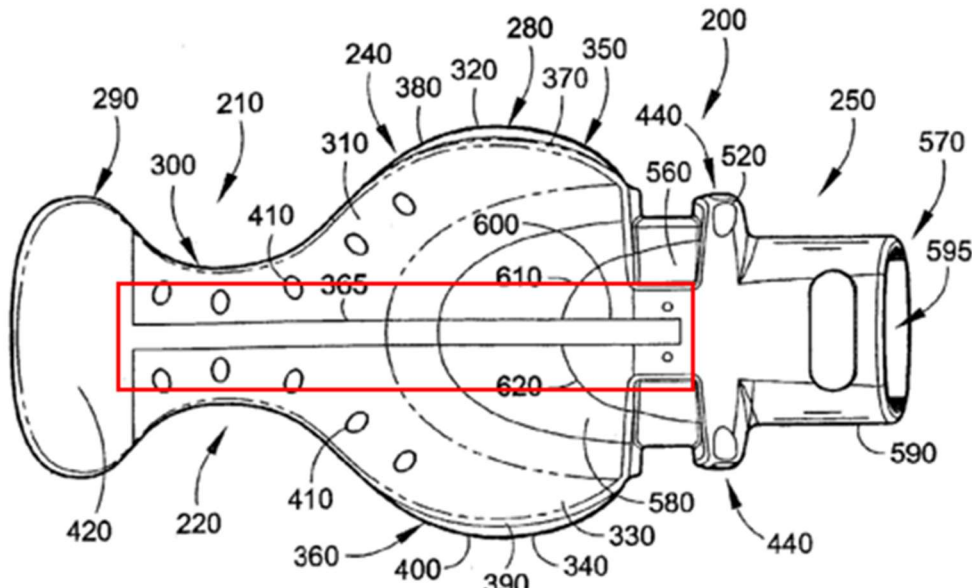
The '217 Patent	Exemplary Disclosures in the Prior Art
	 The figure contains two technical drawings of a dental device. FIG. 1B is a top-down view showing a central shaft (150) passing through a body (110) with multiple holes (140). A tip (170) is attached to the end of the shaft. A bracket (130) is on the left, and a component (120) is on the right. FIG. 1C is a side view showing the profile of the device with a central opening (160). Section lines 1E-1E are indicated at both ends. A red arrow points from a text box to the junction of the tip and the body in both views. The text box contains the text: "Tip connects to both anterior wall and posterior wall". DM1 also discloses the same “one connector that connects the anterior wall to the posterior wall within the interior space:”

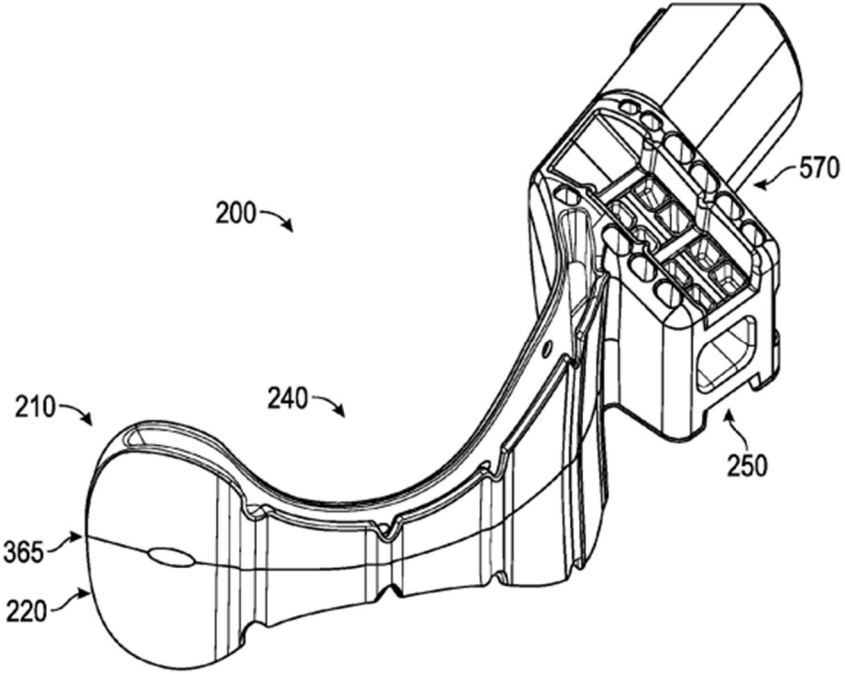
The '217 Patent	Exemplary Disclosures in the Prior Art
	 Further, under Solmetex's construction used in infringement, when the product is in use, the internal bridge structures of DM1 connect the posterior and anterior walls. To the extent that Solmetex disagrees, a PHOSITA would add "one connector that connects the anterior wall to the posterior wall within the interior space," as such a feature is common in the prior art, and would help improve any anti-collapse mechanisms within the mouthpiece. Further, under Solmetex's construction used in infringement, Black, AirBug, Mr. Thirsty Mouthpiece, Hirsch, Hirsch 2, and Isolite Mouthpiece each disclose connectors that connect the anterior and posterior walls in the interior space: Black:

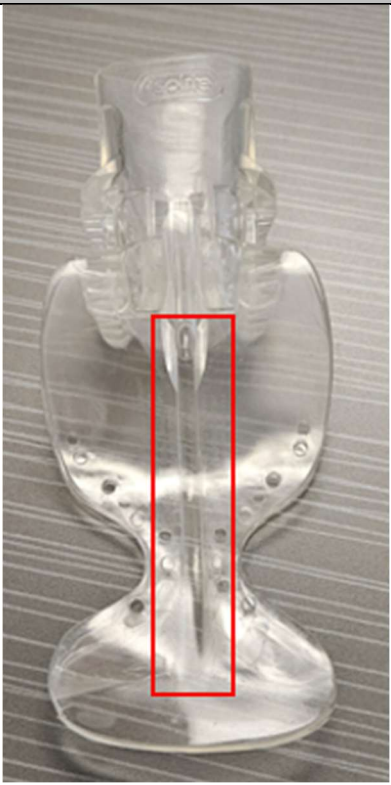
The '217 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 23C AirBug:

The '217 Patent	Exemplary Disclosures in the Prior Art
	 Bridge structure connecting first and second wall Mr. Thirsty:

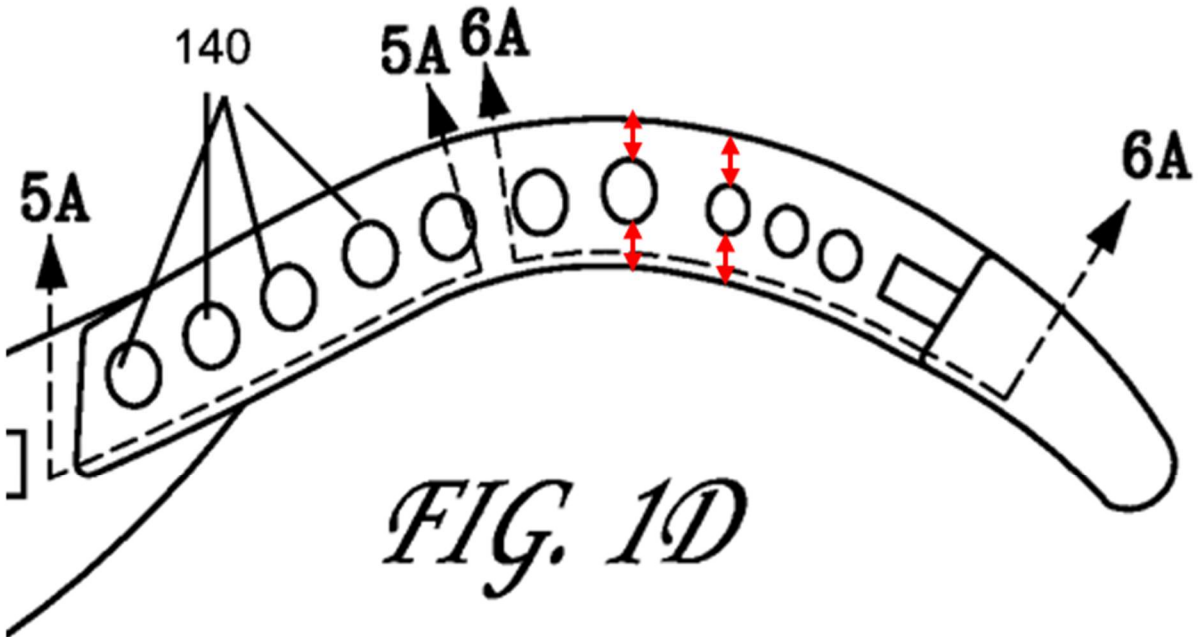
The '217 Patent	Exemplary Disclosures in the Prior Art
	 Hirsch:

The '217 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19A Hirsch 2 (365, “common central spine”):

The '217 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 11 Isolite Mouthpiece:

The '217 Patent	Exemplary Disclosures in the Prior Art	
		
17[d] at least one intervening wall protruding from and extending along an edge of the anterior wall or the posterior wall, the at least one intervening wall having a span that extends partially across the distance of the interior space,	Nguyen teaches two sidewalls (inferior and superior) each connected to both the anterior and posterior walls. Nguyen, 3:37-54.	

The '217 Patent	Exemplary Disclosures in the Prior Art
	FIG. 1A FIG. 4 Because each sidewall is connected to both the anterior wall and the posterior wall, each sidewall protrudes from the anterior wall along an edge of the anterior wall and each also sidewall protrudes from the posterior wall along an edge of the posterior wall. <i>Id.</i>, see also, Nguyen, FIG. 1A, 3:63-4:3. DM1 also teaches two sidewalls (inferior and superior) each connected to both the anterior and posterior walls. Nguyen, 3:37-54.

The '217 Patent	Exemplary Disclosures in the Prior Art
	It appears that under Solmetex's construction of this patent family (<i>see e.g.</i> D1,037,436), Nguyen and DM1 also discloses "partially across the distance" of the interior space as well:  The diagram, labeled FIG. 1D, shows a curved arch with a series of circular elements (teeth or components) arranged along its length. A dashed line, labeled 140, runs parallel to the arch, indicating a specific path or boundary. Red double-headed arrows indicate the distance between the arch and the dashed line. Labels 5A and 6A point to specific features on the arch, and a bracket labeled 5A is shown on the left side.

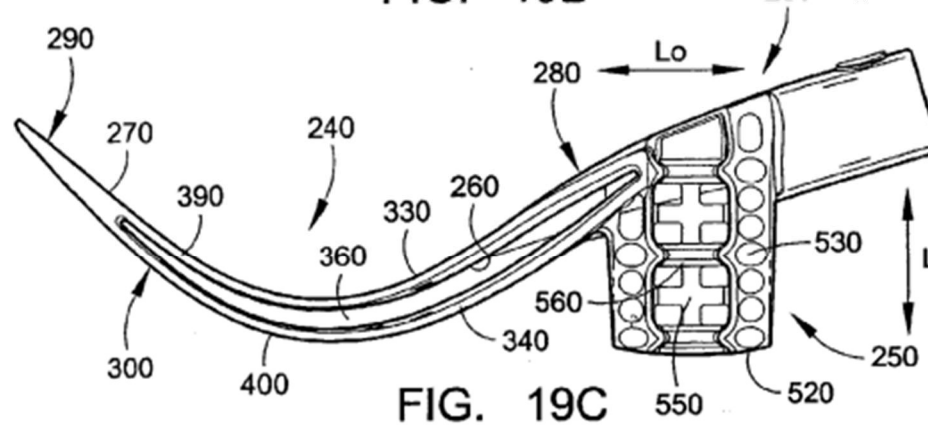
The '217 Patent	Exemplary Disclosures in the Prior Art
	 To the extent Nguyen and DM1 teaches that the superior and inferior walls span the entire (not “partial”) distance between the anterior and posterior walls, it would have been obvious to open the sidewalls of Nguyen or DM1 in view of one or two of the skill of a PHOSITA, Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, and Isolite Mouthpiece, thereby creating two intervening walls that each partially extend across the distance between the anterior and posterior walls. Nguyen, 3:63-4:3. Black teaches an “open” tongue shield aspirator. Black, 17:47-54, 6:10-20 (all or only a portion of the sides may be open).

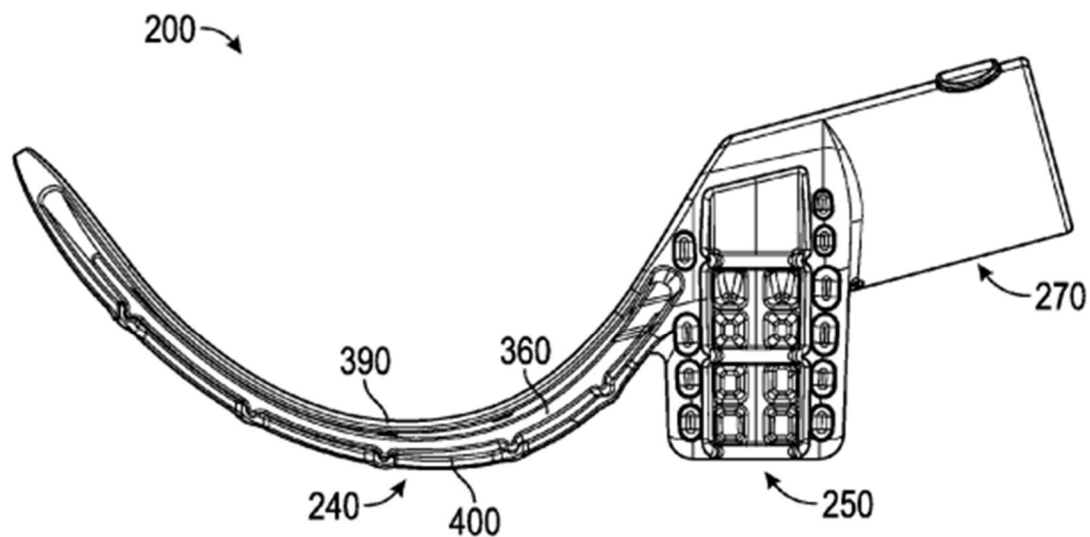
The '217 Patent	Exemplary Disclosures in the Prior Art
	FIG. 23A is a cross-sectional view of a dental isolation mouthpiece. It shows a central channel (340) with side walls (348a, 348b, 348c, 348d) and a distal opening (340b). Other components labeled include 340c, 342, 347, 343, 345, and 340a. FIG. 23C is a longitudinal view of the same device. It shows the central channel (340) and side walls (348a, 348b, 348c, 348d) from a different perspective. Other components labeled include 344, 346, 346a, 346b, 347, and 342. Black explains that an open-sided tongue shield aspirator, which is a dental isolation mouthpiece, facilitates enhanced fluid and debris aspiration as well as easier bending for fitting into the patient's mouth. Black, 17:47-54. Because an open-sided mouthpiece increases suction, a PHOSITA would have been motivated to open the sidewalls of Nguyen or DM1 to achieve these advantages. <i>Id.</i> A PHOSITA would have also been motivated to open the sidewalls of Nguyen or DM1 in order to make it easier to clean. To this end, opening the sidewall of Nguyen or DM1 would use a known technique (open sidewall on a dental isolation mouthpiece) to improve similar, known mouthpieces (the similar dental isolation mouthpiece of Nguyen or DM1) in the same way (Nguyen or DM1 mouthpiece would exhibit increased suction and easier cleaning). <i>KSR Int'l Co. v. Teleflex Inc.</i>, 550 U.S. 398, 415-421 (2007). Alternatively, opening the sidewalls of Nguyen or DM1 would apply a known technique (opening the sidewalls of a dental isolation mouthpiece) to a known device ready for improvement (Nguyen or DM1 mouthpiece having certain downsides, discussed below) to yield predictable results (an open-sided mouthpiece with improved suction due to less suction channel narrowing and easier cleaning). <i>Id.</i> More specifically, regarding improved suction, a PHOSITA would know that, because the anterior and posterior walls comprise a flexible material, the dental mouthpiece of Nguyen or DM1 would bend within the mouth due to the roof of the mouth pressing down on the superior sidewall and the floor of the mouth pressing up on the inferior sidewall. Nguyen, 3:29-31, 3:42-45; Black, 19:33-20:47. Similarly, PHOSITA would expect that the force from the ridges of a patient's gums on the rectangular portion of Nguyen or DM1 would also cause additional bending/folding. Nguyen, 4:20-30; Black, 20:3-20; Nguyen, 1:52-55, 2:2-5. Further, a PHOSITA would expect increased patient comfort when opening up the side walls of Nguyen or DM1, as the square ridges of the side wall would be pressing against the mouth, whereas open sides would allow for less pressure and sit more comfortably within the mouth. A PHOSITA would understand that when two parallel walls are connected at their edges and spaced apart, any bending force from mouth tissue would force the two walls to bend along different paths. The "outer" (posterior)

The '217 Patent	Exemplary Disclosures in the Prior Art
	wall would bend at a different radius than the “inner” anterior sheet. Black, 20:3-20. However, the two anterior wall and the posterior wall cannot bend at the same radius – the geometry does not allow it. <i>Id.</i> Since the anterior and posterior wall are connected by sidewalls, one wall cannot slide or change its relative spacing, so the anterior (inner) wall will buckle from the forces acted on it from the sidewalls. <i>Id.</i> This is the basic geometric constraint of bending layered materials. <i>Id.</i> A PHOSITA would understand that the folding force caused by mouth tissue on the posterior wall would transfer through the sidewall and provide extra torque on the anterior wall in addition to the mouth tissue force, thereby causing the anterior wall to fold more than the posterior wall due to the geometric constraint of bending layered materials. Nguyen, 3:36-54. Under these conditions, a PHOSITA would know that the anterior wall would crease at certain points toward the posterior wall, narrowing or partially blocking important suction channels. <i>Id.</i> In addition to Black, Mr. Thirsty and AirBug teach the same open walls: 



Hirsch, Hirsch 2, and the Isolite Mouthpiece likewise teach the same open walls.



**FIG. 6**

Indeed, a PHOSITA would recognize that the anterior wall of Nguyen or DM1 would first start to bend or crease at the slit 170, as it is the weakest part of the anterior wall. Nguyen, FIG. 1A. This creasing would partially block one of the channels (troughs) created by the bridge structure 180 and decrease suction at the rectangular portion of the mouthpiece – an important suction location, as this is where the dental operation occurs. Nguyen, 2:10-16, 4:38-56.

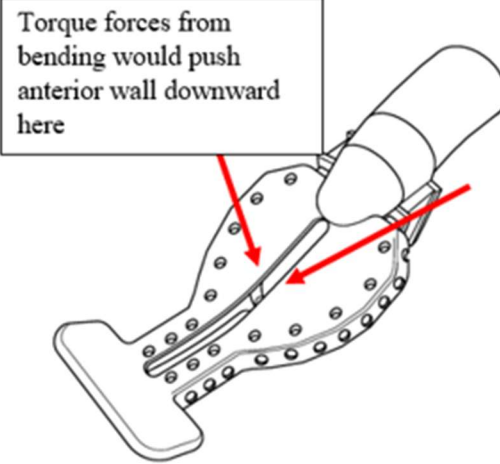


FIG. 1A

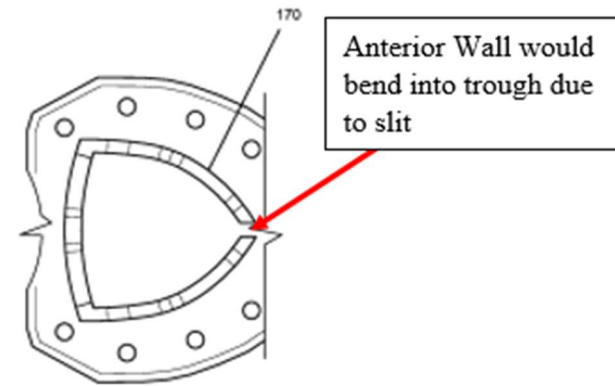


FIG. 5

In addition, a PHOSITA would recognize that the bending force would further cause bending at the anterior wall where the anterior wall meets the suction connector. Indeed, Nguyen and DM1 teach that the suction connector comprises a thicker material than the anterior wall, meaning the thinner, weaker anterior wall would bend short of the suction connector. Nguyen, 4:57-63.

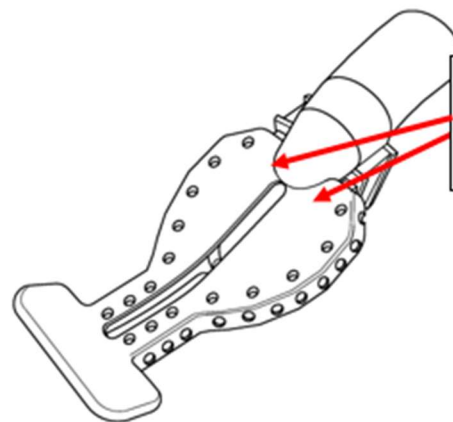


FIG. 1A

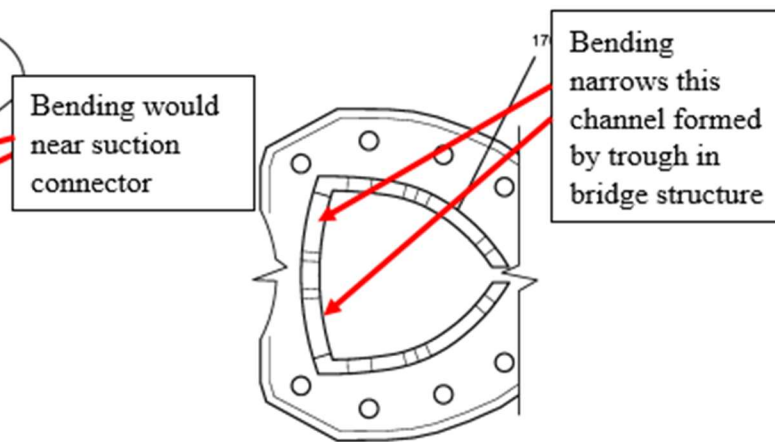
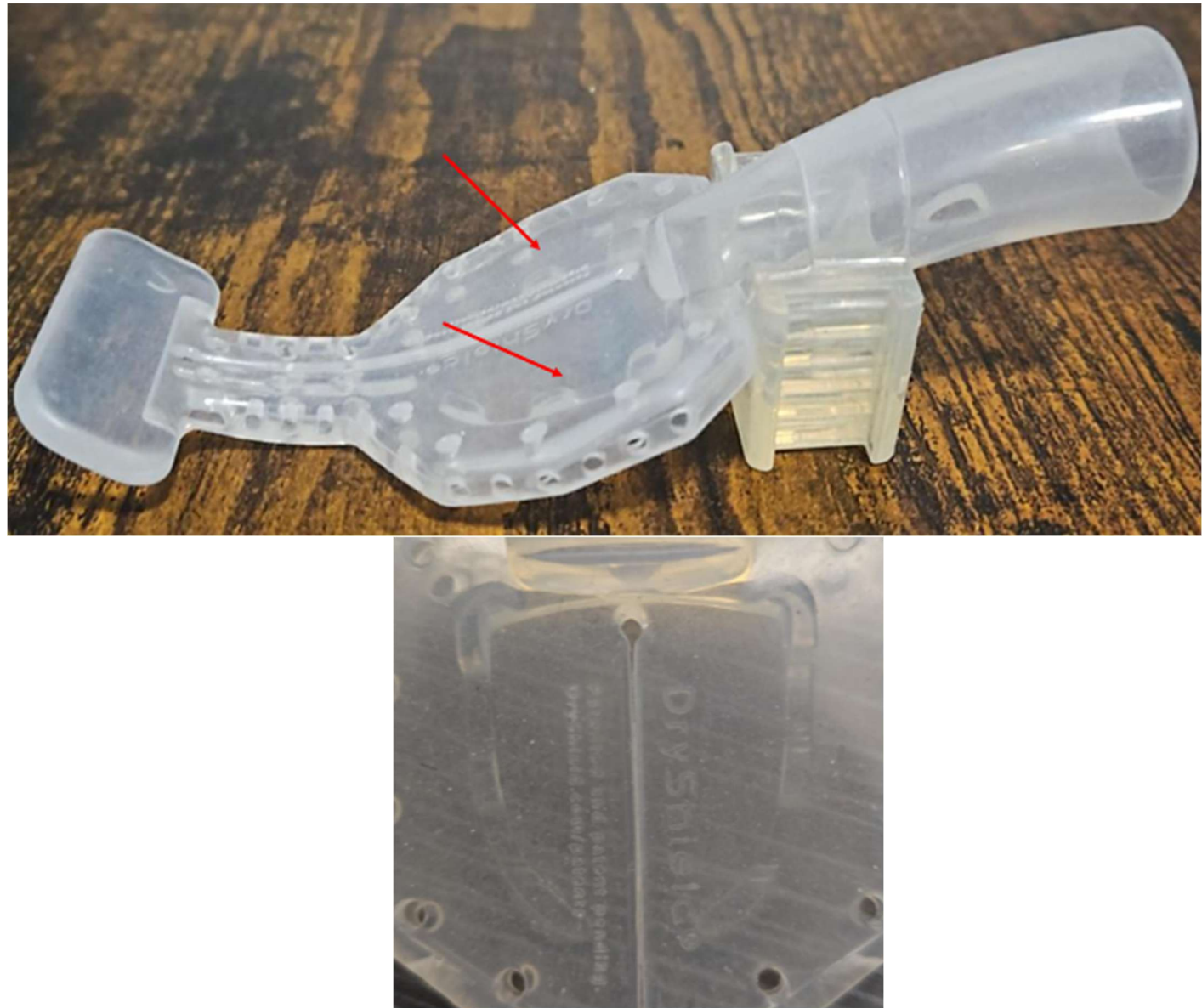


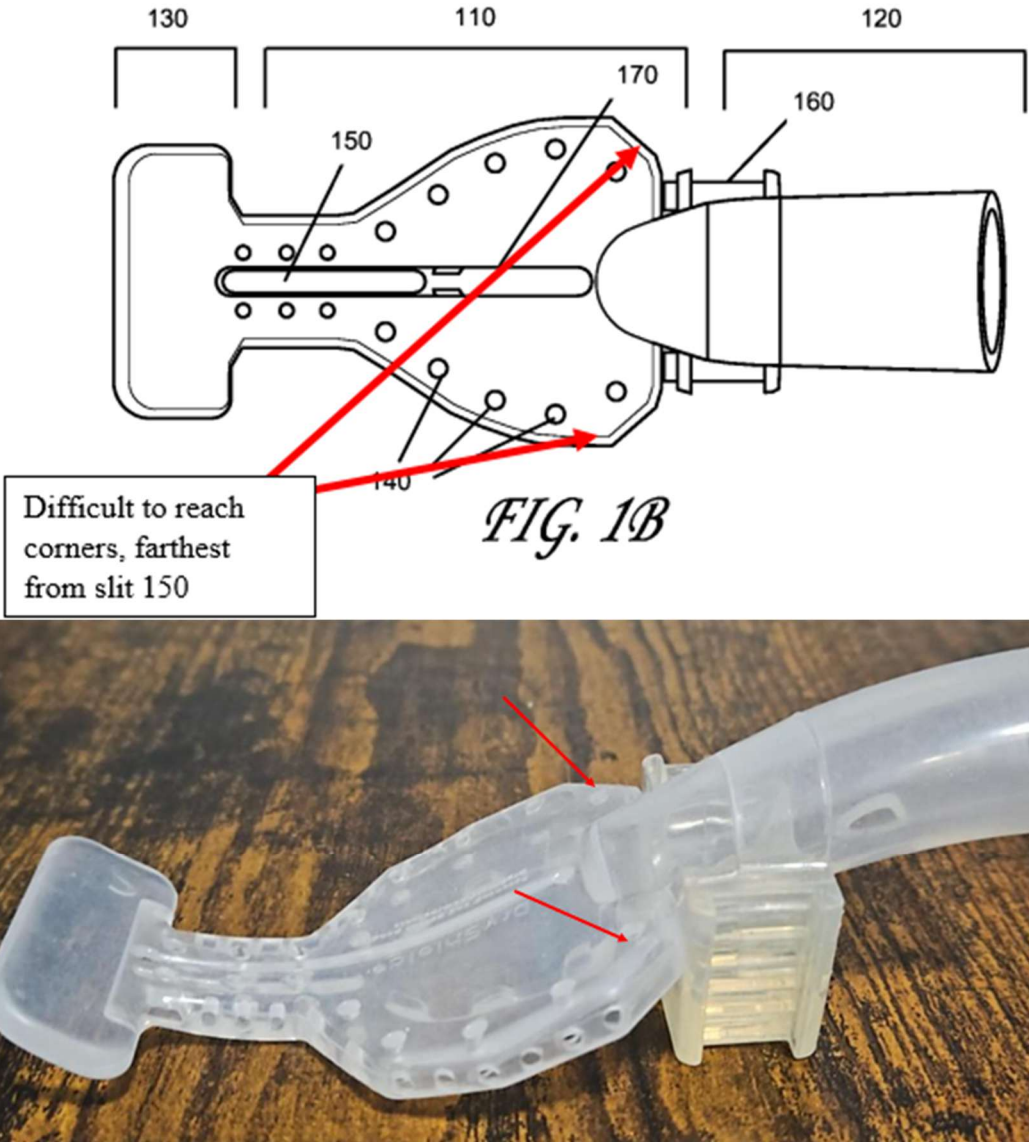
FIG. 5

DM1 teaches the same:



As shown above, the anterior wall would bend into a trough in the bridge structure 180 near the suction connector, thereby partially blocking one or both of the suction inlet locations at the suction connector.

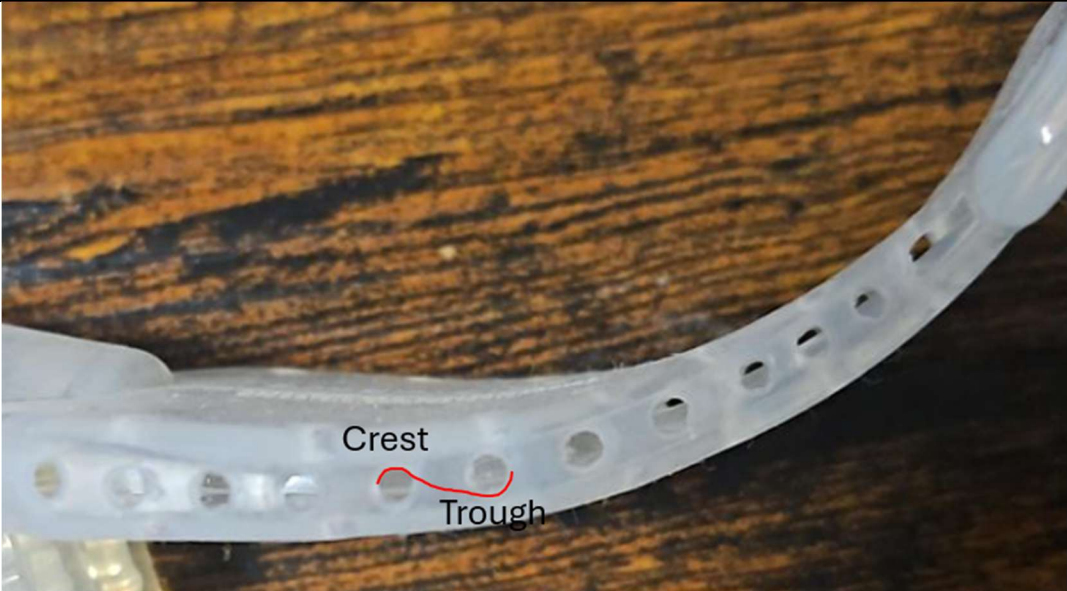
The '217 Patent	Exemplary Disclosures in the Prior Art
	With that understanding, a PHOSITA would further understand that an unconnected edge would allow the anterior and posterior walls to bend at different radiuses. This is because the anterior wall would not receive the posterior wall's folding force through the sidewalls (i.e., the torque) as well as any folding force it also received from mouth tissue. <i>Id.</i> Instead, with open-sides, the anterior wall would bend independent of the posterior wall, and the anterior wall would not block any suction channels (i.e. "troughs"). <i>Id.</i> A PHOSITA would also recognize that opening the sidewalls would increase suction through the sides of the mouthpiece. Nguyen and DM1 can only apply suction through the small holes 140 formed on the sidewalls. It cannot aspirate fluid, debris, etc. between the holes 140. Nguyen, 3:63-4:3. Opening the sides would allow suction to occur in more places along the sides of the mouthpiece. Black, 17:47-54. It would also allow for the suction, and removal, of larger debris. <i>Id.</i> A PHOSITA would have also been motivated to open the sides of Nguyen or DM1 to make it easier to clean and reuse the dental mouthpiece. Nguyen teaches that the mouthpiece is autoclavable and reusable. Nguyen, 3:8-10. In order to reuse a dental mouthpiece, it must be cleaned between uses and between patients. Nguyen, 4:34-37. Nguyen explains that cleaning occurs through the slit 170. Nguyen, 4:34-37. A PHOSITA would have known that the pocket design of Nguyen, with the slit 170, would not be conducive to easy cleaning. For example, a PHOSITA would have

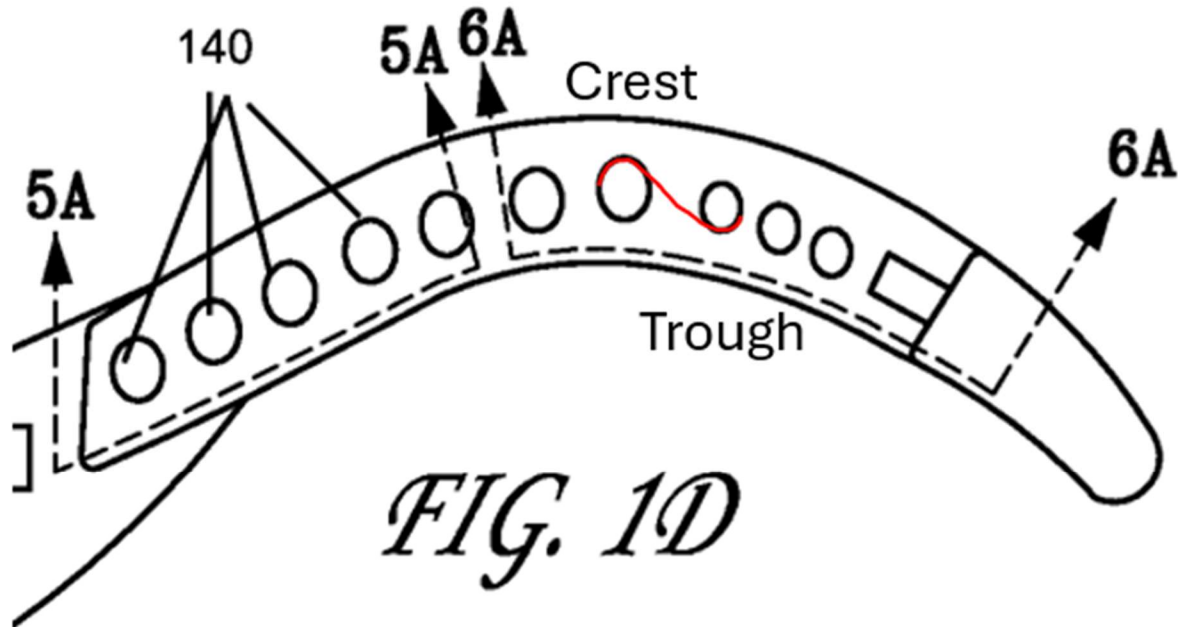
The '217 Patent	Exemplary Disclosures in the Prior Art
	known that it would be difficult or awkward for a hygienist or other dental staff to insert a cleaning brush into the slits 170 and clean the corners of Nguyen. <i>Id.</i>  FIG. 1B Difficult to reach corners, farthest from slit 150 A PHOSITA would have known that a dental mouthpiece with open sides, such as Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, Isolite Mouthpiece would have been far easier to clean because a brush would remove gunk and

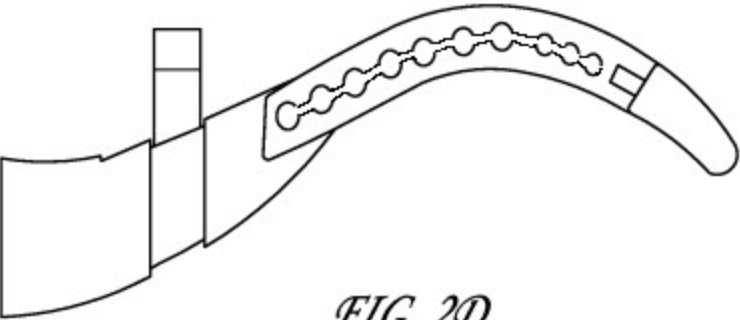
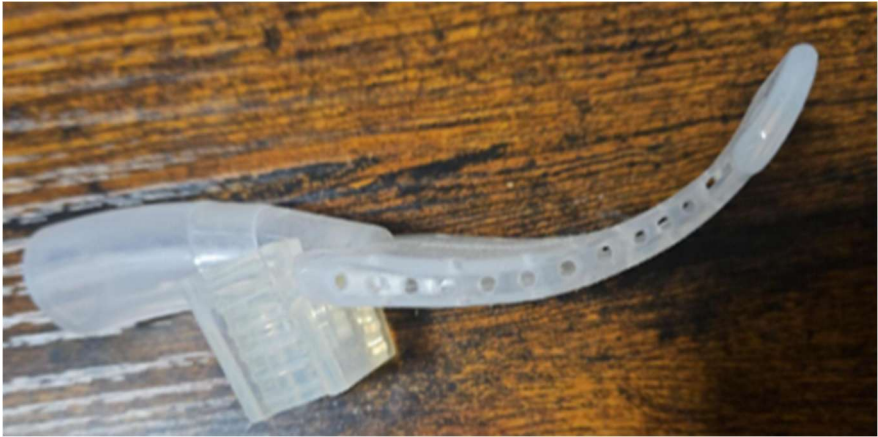
The '217 Patent	Exemplary Disclosures in the Prior Art
	bacteria unimpeded by any wall or material connecting the anterior and posterior walls. Indeed, an open-sided mouthpiece would simply require fitting a brush in between the anterior and posterior walls through the side openings, as opposed to folding back the anterior wall of Nguyen at the slit 170, inserting a brush through the slit 170, and attempting to reach the brush into all small corners formed on the mouthpiece of Nguyen. Nguyen, 4:34-37, FIG. 1B. An open-sided mouthpiece would not have any difficult to reach corners. Most prior art isolation mouthpieces implemented open sides. Hirsch, FIG. 2; Black, FIG. 23C, Hirsch, Hirsch 2. Thus, for all these reasons, a PHOSITA would have been motivated to open the sides of Nguyen or DM1 in view of one or two of the skill of a PHOSITA, Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, or Isolite Mouthpiece. As yet another reason supporting motivation to open the sides of Nguyen or DM1 in view of Hirsch 2, Hirsch 2 teaches a retractor 240 having gaps 350, 360. Hirsch, 3:17-21. Hirsch explains that the upper gap 350 engages the roof of the patient's mouth, and the lower gap 360 engages the lingual or floor of the patient's mouth. Hirsch 2, 4:43-67. Hirsch 2 further explains that the mouth tissue bends the flaps 310, 320, 330, 340 forward. <i>Id.</i> FIG. 6 Alternatively, a PHOSITA would recognize that Hirsch 2's grooved wall would function as an anti-collapse structure that could replace Nguyen or DM1's sidewalls. Hirsch 2 teaches V-shaped grooves 416 formed on the edge of a wall that become fluid inlets for drawing in fluid. Hirsch 2: FIG. 8, 4:67-5:8. A projecting wall with groves 416 as shown in Hirsch connected to only the posterior wall would generate an open-sided mouthpiece with anti-collapse structure formed at the edges of the mouthpiece. As such, Nguyen or DM1 in view of Hirsch 2 is a simple substitution of one known element (a sidewall connected to two walls) for another element (a wall having V-shaped grooves for suction at the edges of the wall) to obtain predictable results (a mouthpiece having a sidewall connected to only the posterior wall and having V-shaped groves at the edge of the span of the sidewall). <i>See</i> annotated Nguyen, FIG. 1A and 1D.

The '217 Patent	Exemplary Disclosures in the Prior Art
	FIG. 1A FIG. 1D A PHOSITA would have expected success in modifying Nguyen or DM1 in view of Hirsch 2 as proposed above because Hirsch 2 explains that a wall having V-shaped grooves assists in suction. Hirsch 2, 3:51-55, 4:4-16. Nguyen in view of Hirsch 2 would still allow for suction on the superior and inferior sides, while also making the mouthpiece more comfortable, prevent suction blockages, and make the mouthpiece easier to clean. Nguyen, 3:63-4:3. Additionally, substituting the sidewalls connected to both the anterior and posterior walls with an upward projecting wall having grooves connected only to the posterior wall would function as anti-collapse structure at the edges. To the extent Solmetex argues that a PHOSITA would not have been motivated to implement the grooves 416 of Hirsch 2 on a sidewall because the grooves 416 are located on a posterior flap of Hirsch 2, such an argument would greatly diminish the common sense of a PHOSITA. As described above, a PHOSITA would have been motivated to

The '217 Patent	Exemplary Disclosures in the Prior Art
	maintain anti-collapse structure at the edges of the mouthpiece to avoid the undesirable seal taught by Hirsch. Hirsch, 4:43-67. However, a PHOSITA would know that there must be some inlet for suction to occur, lest the sidewall completely block suction through the superior and inferior sides. Hirsch 2, 3:51-55, 4:4-16. Hirsch describes one such fluid inlet in the form of V-shaped (or U-shaped) grooves. Hirsch 2, 3:51-55, 4:4-16. A PHOSITA would instantly recognize that grooves of this shape would function as inlets in either a posterior, anterior, or sidewall configuration. Indeed, U-shaped grooves are nothing more than half of the circular perforations described by Nguyen. Or alternatively, it would have been equally obvious to duplicate the bridge structure 180 at the edges of the mouthpiece. MPEP 2144.04(VI)(B). Finally, a PHOSITA may be further motivated to remove the slit 170. The slit 170 primarily operates as an opening into the pocket of Nguyen or DM1 for cleaning purposes. Nguyen, 4:31-37. The open sides of modified Nguyen or DM1 in view of Hirsch 2 would remove the need for the slit because cleaning would most easily occur through the sides. The slit 170 can stay because Nguyen or DM1 mentions that it assists in suction. Nguyen, 4:35-37. If the slit 170 were removed, the collapse issues mentioned above may be rectified, so a PHOSITA would also be motivated to remove the slit 170, but this removal is of little consequence to the claim language of the claim 17. So, for all the reasons discussed above, a PHOSITA would have been motivated to modify the mouthpiece of Nguyen or DM1 in view of one or two of the skill of a PHOSITA, Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, Isolite Mouthpiece.
17[e] and wherein an edge of the span of the at least one intervening wall has a plurality of alternating crests and troughs that extend different distances partially across the interior space, and	As discussed above, the “one intervening wall protruding from and extending along an edge of the anterior wall or the posterior wall,” also discloses a plurality of alternating crests and troughs that extend different distances partially across the interior space:

The '217 Patent	Exemplary Disclosures in the Prior Art
	

The '217 Patent	Exemplary Disclosures in the Prior Art
	 As shown below in annotated FIG. 2D, Nguyen or DM1 modified by one or two of the skill of a PHOSITA, Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, and Isolite results in two intervening walls extending partially across the distance between the anterior wall and the posterior wall. The simple cut across the middle of the original sidewall forms two intervening walls, each with an edge having alternating crests and troughs that extend different distances across the span. Nguyen, FIG. 2D. A PHOSITA would have been motivated to add such a slit for each of the reasons discussed in limitation 17[d]. The resultant design would have the “crests and troughs” of limitation 17[e].

The '217 Patent	Exemplary Disclosures in the Prior Art
	 <i>FIG. 2D</i> Nguyen, Fig. 2D (modified to include connecting slit). 
17[f] a neck extending from the second end of the main body portion, wherein a width of the neck is less than a width of the main body portion at the first end,	Nguyen or DM1 teach a rectangular portion, acting as a neck, extending from the main body portion 110. Nguyen, 4:4-11. As shown in FIG. 1B, for example, the rectangular portion is narrower than the main body portion 110 at the suction connector end 120.

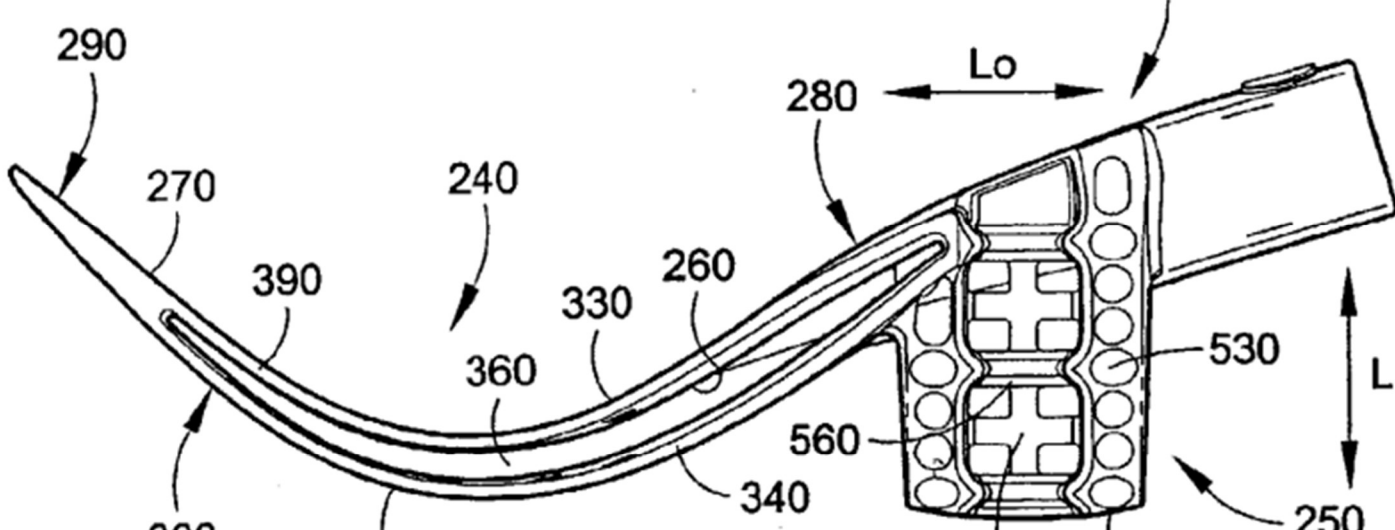
The '217 Patent	Exemplary Disclosures in the Prior Art
	<i>FIG. 1B</i> DM1 shows the same feature.
17[g] a suction connector portion connected to the first end of the main body portion, the suction connector portion further configured to connect the interior space to a vacuum suction source; and	Nguyen or DM1 teach a suction connector portion 120 connected to the first end of the main body portion 110 configured to connect the interior space to a vacuum source. Nguyen, 3:20-22, 4:57-63, 6:24-28.

The '217 Patent	Exemplary Disclosures in the Prior Art
	<i>FIG. 1B</i> DM1 shows the same feature.
17[h] a cheek retractor portion connected to the neck that extends from the second end of the main body	As shown below, the cheek retractor 130 extends from the end of the main body portion 110 opposite the suction connector 120, and the cheek retractor 130 is wider than the rectangular neck portion.

The '217 Patent	Exemplary Disclosures in the Prior Art
portion, wherein the width of the neck is less than a width of the cheek retractor portion.	<i>FIG. 1B</i> DM1 shows the same feature.
18 The mouthpiece of claim 17, wherein the at least one intervening wall includes a plurality of portions of varying heights relative to a longitudinal axis of the mouthpiece.	When Nguyen or DM1 is modified as discussed in limitation 17, the simple cut across the middle of the original sidewall forms two intervening walls, each with an edge having alternating crests and troughs that extend different distances across the span.
19 The mouthpiece of claim 17, further comprising a bite block integrated to the	Nguyen or DM1 teach a mouth prop 160 integrated into the suction connector portion 120 to provide crush-resistance during biting by a patient. Nguyen, 5:9-28. The mouth prop 160 is integrated to the suction connector using strap 310. Nguyen, 4:65-5:2.

The '217 Patent	Exemplary Disclosures in the Prior Art
suction connector portion, wherein the bite block provides crush-resistance during biting by a patient.	A line drawing of a dental device. It features a curved, elongated body with a series of small circular holes along its length. At one end, there is a wider, flatter section. At the other end, there is a cylindrical component that appears to be a suction connector. The device is shown in a perspective view, angled upwards. <i>FIG. 1A</i> A photograph of a clear plastic dental device, likely a mouth prop or bite block, resting on a wooden surface. The device has a similar shape to the one in FIG. 1A, with a curved body and a cylindrical suction connector at one end. It is shown from a different angle, highlighting its transparency and the texture of the wood. To the extent Solmetex argues that the detachable mouth prop 160 is not “integrated to the suction connector”, it would have been obvious to make the mouth prop integral with the rest of the mouthpiece. MPEP 2144.04(V)(B); <i>In re Larson</i>, 340 F.2d 965, 968 (CCPA 1965) (“the use of a one piece construction instead of the [multiple parts rigidly secured together from the prior art] would be merely a matter of obvious engineering choice.”).

The '217 Patent	Exemplary Disclosures in the Prior Art
	Further, Mr. Thirsty, Hirsch, Hirsch 2, and the Isolite Mouthpiece disclose a bite block integrated into the suction connector portion: Mr. Thirsty:  Hirsch:

The '217 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19C Hirsch 2:

The '217 Patent	Exemplary Disclosures in the Prior Art
	FIG. 6 Isolite Mouthpiece:
20 The mouthpiece of claim 17, wherein the main body	Nguyen teaches that the main body 110, the suction connector portion 120, and the cheek retractor 130 are formed in one piece by injection molding. Nguyen, Abstract.

The '217 Patent	Exemplary Disclosures in the Prior Art
portion, the suction connector portion, and the cheek retractor portion are formed by injection-molding as one piece.	DM1 teaches the same: 
21 The mouthpiece of claim 17, wherein the suction connector portion comprises a cutout corresponding to a protrusion on a vacuum adaptor to provide an interlocking fit.	Nguyen teaches a cutout 230 formed on the suction connector 120 corresponding to a protrusion on a vacuum adaptor to form an interlocking fit. Nguyen, 5:22-57. DM1 teaches the same: 

The '217 Patent	Exemplary Disclosures in the Prior Art
22 The mouthpiece of claim 17, where in the suction connector portion connects to the vacuum suction source, wherein activation of the vacuum suction source provides suction of fluids from the interior space of the main body portion.	<i>See limitation 17[g].</i>
23 The mouthpiece of claim 22, wherein the activation of the vacuum suction source further draws fluids from an exterior of the main body portion into the interior space of the main body portion.	<i>See limitation 17[g].</i>

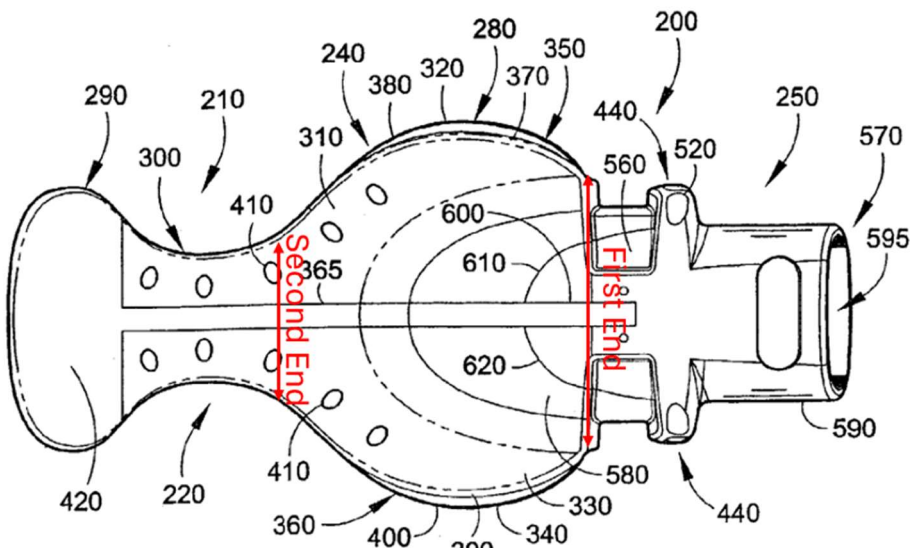
EXHIBIT D-2 (Hirsch or Isolite Mouthpiece in View of One or two of the Skill of a PHOSITA, Nguyen, and DM1)
Initial Invalidity Chart for U.S. Patent No. 11,826,217

Ascentcare incorporates by reference the cover pleading to its Initial Invalidity Contentions. These Initial Invalidity Contentions, including these claim charts, are not an admission regarding claim scope or the accused products, and, in particular, that the accused products, including any current or past versions of these products, are covered by, or infringe the Asserted Claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by the Parties. In addition, these Initial Invalidity Contentions should not be taken as an admission that any of the asserted claims satisfy the requirements of 35 U.S.C. § 112. Where Ascentcare identifies portions of the prior art reference below, those identifications are intended to be exemplary in nature and are based on Ascentcare's investigation to-date. Ascentcare reserves the right to rely on un-cited portions of the reference to establish invalidity of the Asserted Claims.

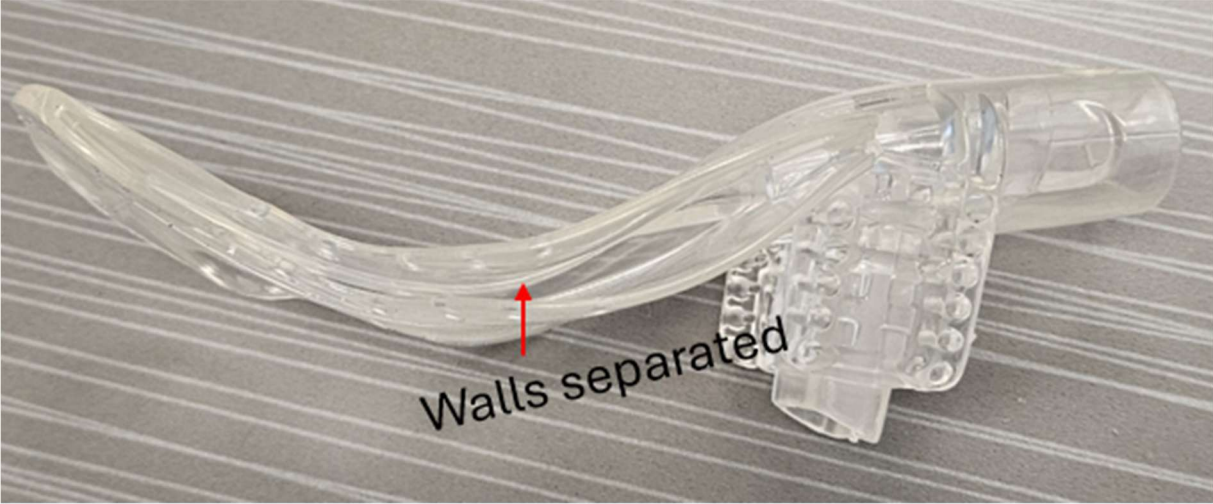
Pursuant to AIA 35 U.S.C. §§ 102 & 103 and as described in the cover pleading and shown below, Nguyen, Hirsch were patented or described in a printed publication more than one year prior to the priority date of the '217 Patent, and therefore anticipates and/or renders obvious, either alone or in combination with the other prior art, the knowledge of one of ordinary skill in the art, or one or two of the references identified in the cover pleading and/or one or two of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 11,826,217.

Pursuant to AIA 35 U.S.C. §§ 102 & 103 and as described in the cover pleading and shown below, Isolite Mouthpiece, and DM1² were on sale or in public use more than one year prior to the priority date of the '217 Patent, and therefore anticipates and/or renders obvious, either alone or in combination with the other prior art, the knowledge of one of ordinary skill in the art, or one or two of the references identified in the cover pleading and/or one or two of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 11,826,217.

² It is Ascentcare's understanding that several of the embodying products discussed herein may have multiple embodiments over the years. Discovery is ongoing, and Ascentcare has issued subpoenas seeking the prior art embodiments. To the extent that Ascentcare currently relies on more current embodiments of these mouthpieces, upon information and belief, the differences in those embodiments are minor and do not affect the invalidity analysis. Ascentcare reserves the right to amend these contentions as discovery progresses. It is Ascentcare's understanding, for example that AirBug and Mr. Thirsty Mouthpiece are products embodying Black, and thus, any of the references to Black likewise support the Mr. Thirsty Mouthpiece, and vice versa. Likewise, the same analysis applies to the Isolite Mouthpiece, Hirsch and Hirsch 2. Further, it is Ascentcare's understanding that Solmetex contends that DM1 embodies Nguyen.

The '217 Patent	Exemplary Disclosures in the Prior Art
17[a] A dental mouthpiece comprising:	To the extent the preamble is limiting, each of the references discussed herein is a dental mouthpiece.
17[b] a main body portion having a first end and a second end, the main body portion comprising: an anterior wall, a posterior wall spaced at a distance from the anterior wall, wherein an interior space corresponding to the distance between the anterior wall and the posterior wall is defined by the anterior	Both Hirsch and the Isolite Mouthpiece disclose “a main body having a first end opposite a second end, the first end wider than the second end an anterior wall, a posterior wall spaced at a distance from the anterior wall, wherein an interior space corresponding to the distance between the anterior wall and the posterior wall is defined by the anterior wall and the posterior wall  FIG. 19A

The '217 Patent	Exemplary Disclosures in the Prior Art
wall and the posterior wall,	A photograph of a clear, curved dental mold. Two red arrows point to opposite ends of the mold, labeled "First End" and "Second End". FIG. 18A is a technical drawing of a dental device. It shows a curved body with various components labeled with numbers: 200, 210, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 370, 380, 390, 410, 420, 440, 450, 520, 530, 540, 570, 580, 590, 640, 650, 660, 680, 730. Two red arrows point to specific edges: "Second Wall / Edge" and "First Wall / Edge". A blue dashed line is labeled "Distance between edges".

The '217 Patent	Exemplary Disclosures in the Prior Art
	
17[c] at least one connector that connects the anterior wall to the posterior wall within the interior space,	Based on the constructions Solmetex has adopted for infringement, Hirsch and Isolite Mouthpiece disclose one connector that connects the anterior wall within the interior space:

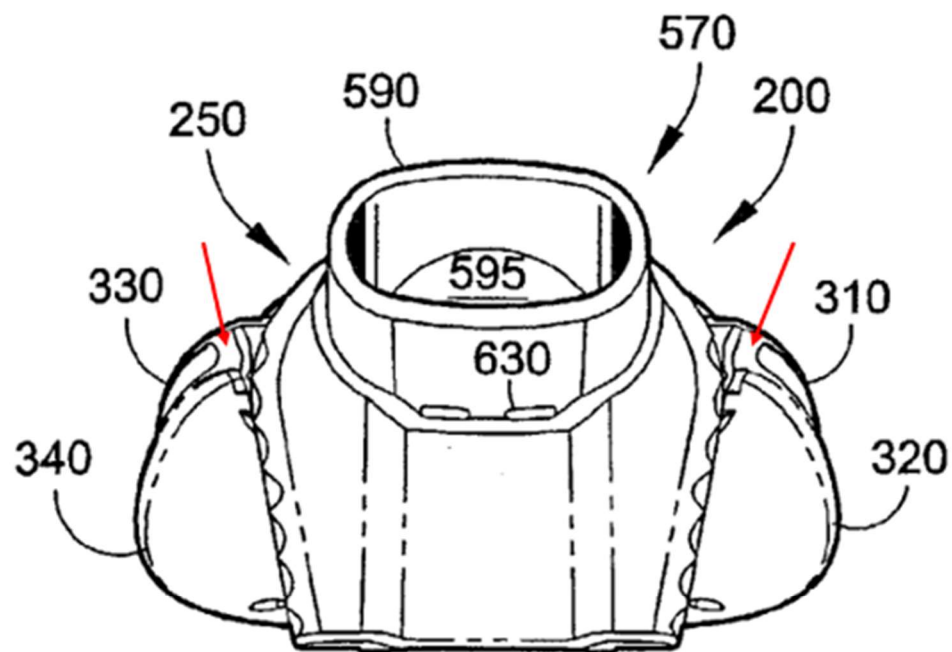
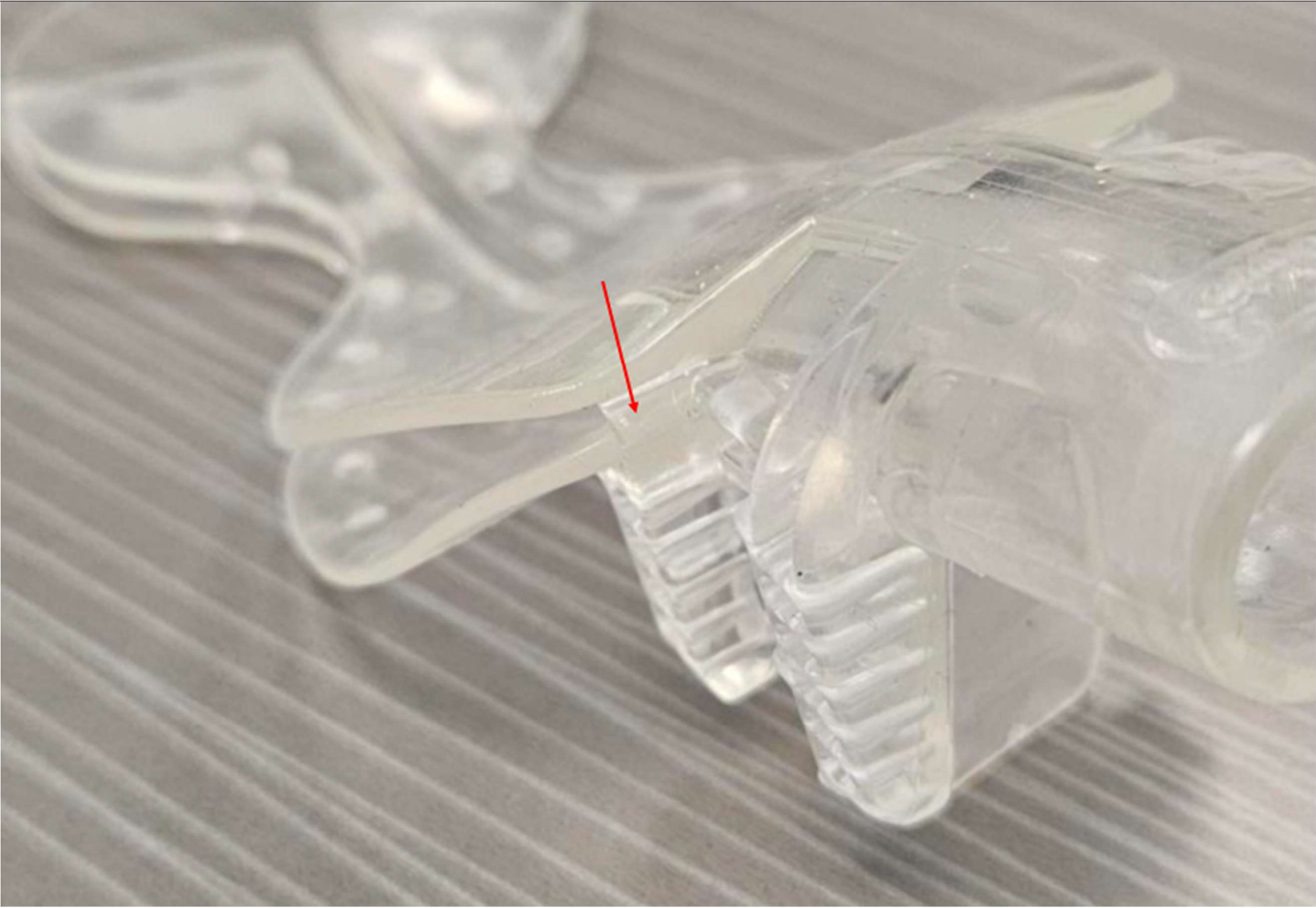
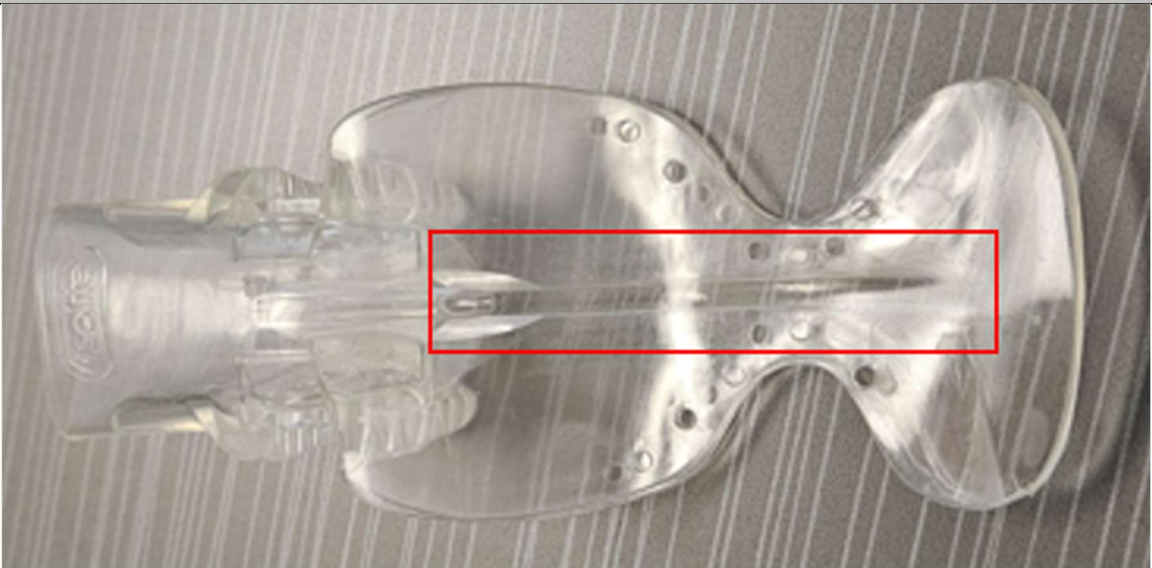
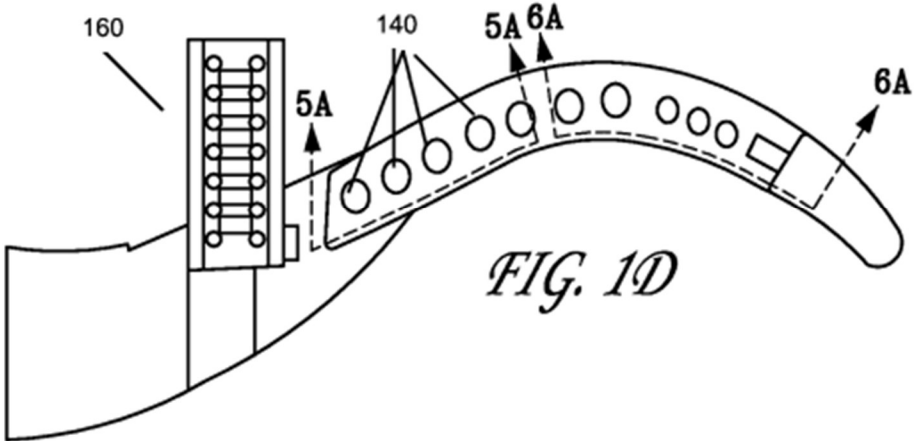


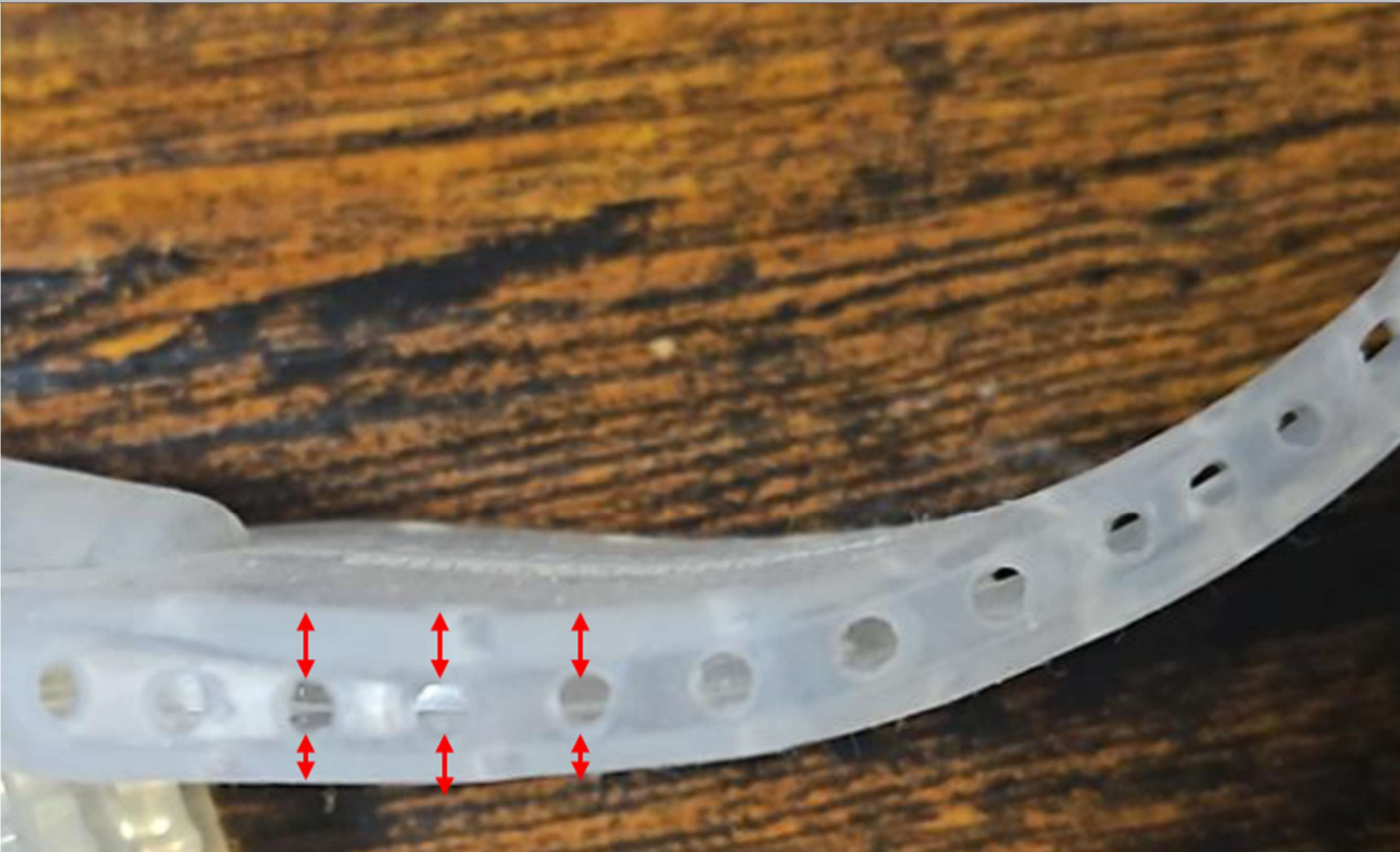
FIG. 19D

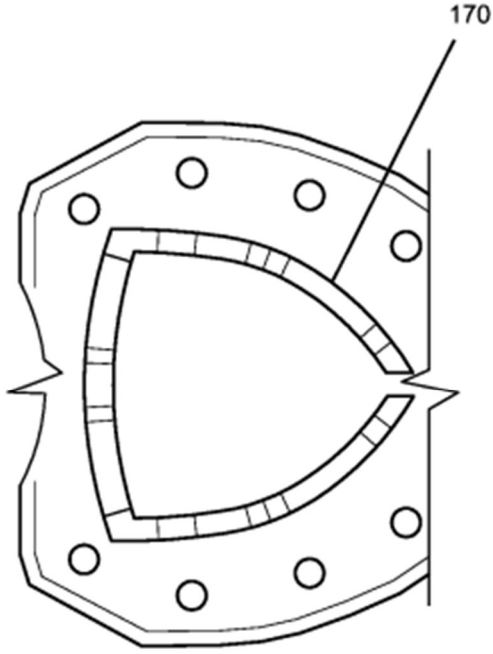
The '217 Patent	Exemplary Disclosures in the Prior Art
	

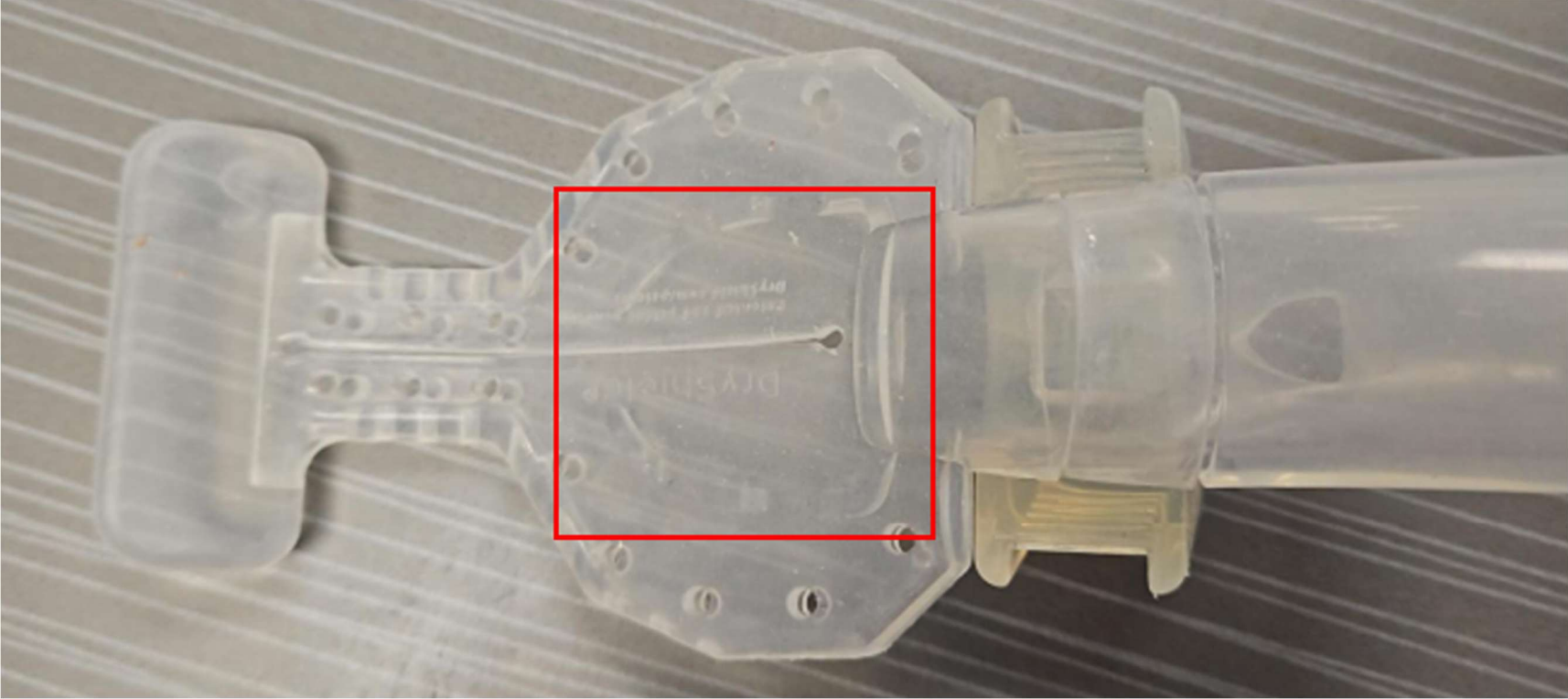
The '217 Patent	Exemplary Disclosures in the Prior Art
	In the alternative, based on Solmetex's construction for infringement, the central spine also connects the walls within the interior space. FIG. 19A

The '217 Patent	Exemplary Disclosures in the Prior Art
	
17[d] at least one intervening wall protruding from and extending along an edge of the anterior wall or the posterior wall, the at least one intervening wall having a span that extends partially	While Hirsch and the Isolite Mouthpiece are silent on anti-collapse structures along the edge, it would have been obvious to a PHOSITA to add such anti-collapse structures on the edge. Indeed, the inventor of Hirsch and the Isolite Mouthpieces admits in a later patent (<i>see</i> Hirsch 2, 5:1-5) that the disclosures of Hirsch and the Isolite Mouthpiece were likely to collapse along the edges. Accordingly, it would have obvious to a PHOSITA to add anti-collapse structures on the edges. Nguyen and DM1 likewise teaches anti-collapse structures. <i>See</i> Nguyen Fig. 1D, 2:10-15; 3:40-54.

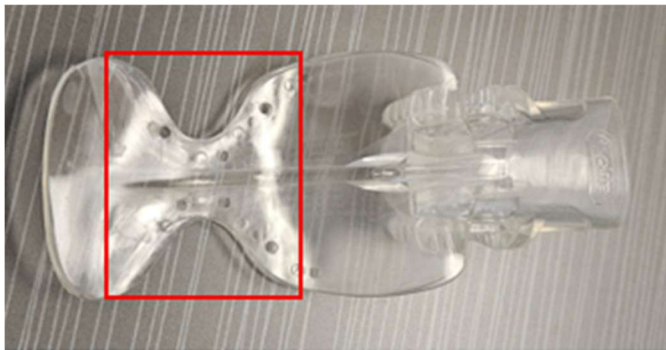
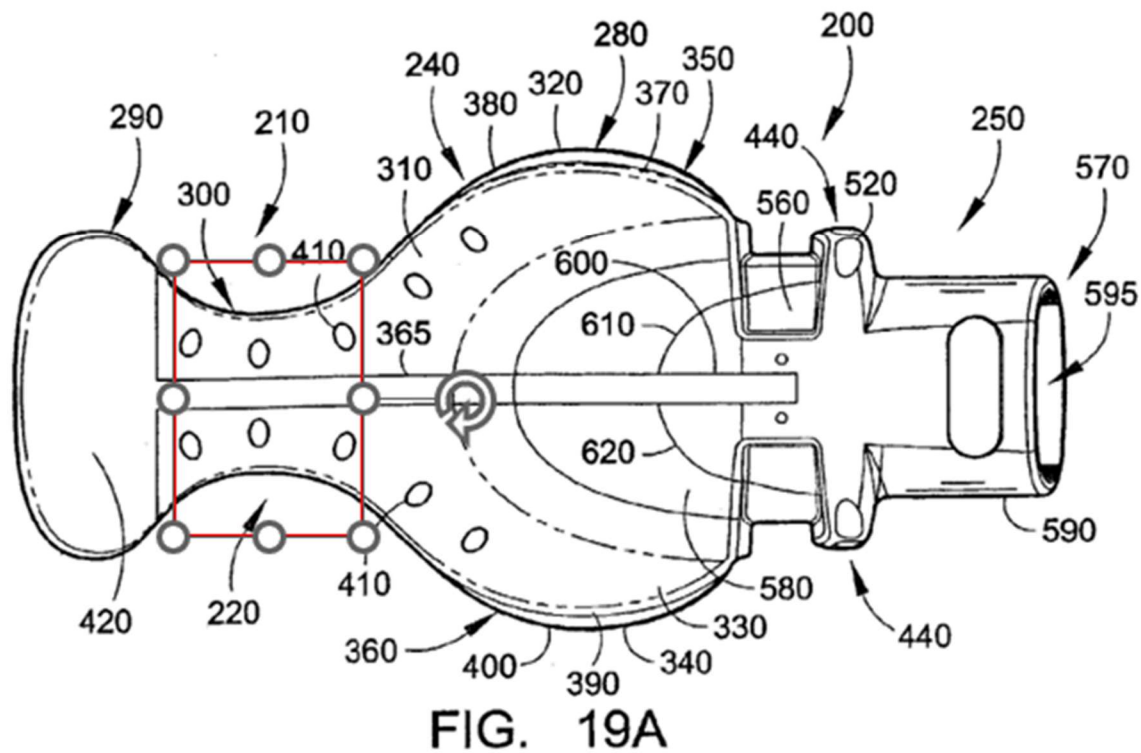
The '217 Patent	Exemplary Disclosures in the Prior Art
across the distance of the interior space,	 <i>FIG. 1D</i>

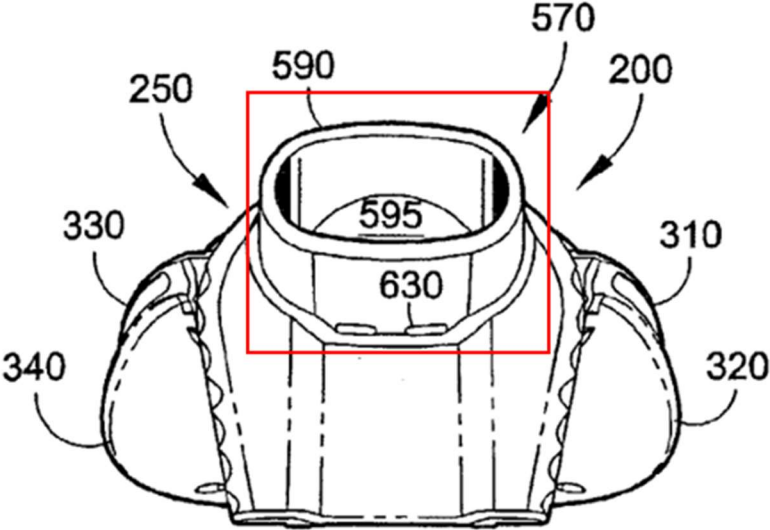
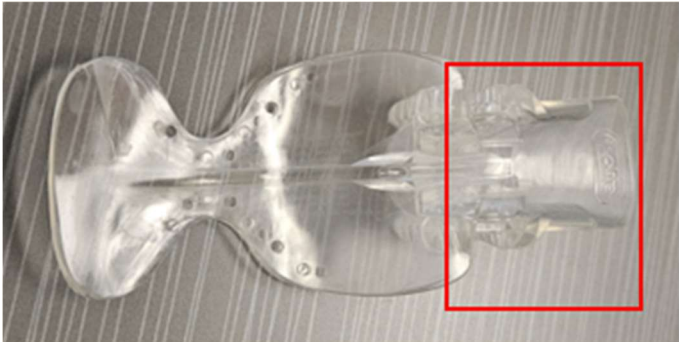
The '217 Patent	Exemplary Disclosures in the Prior Art
	

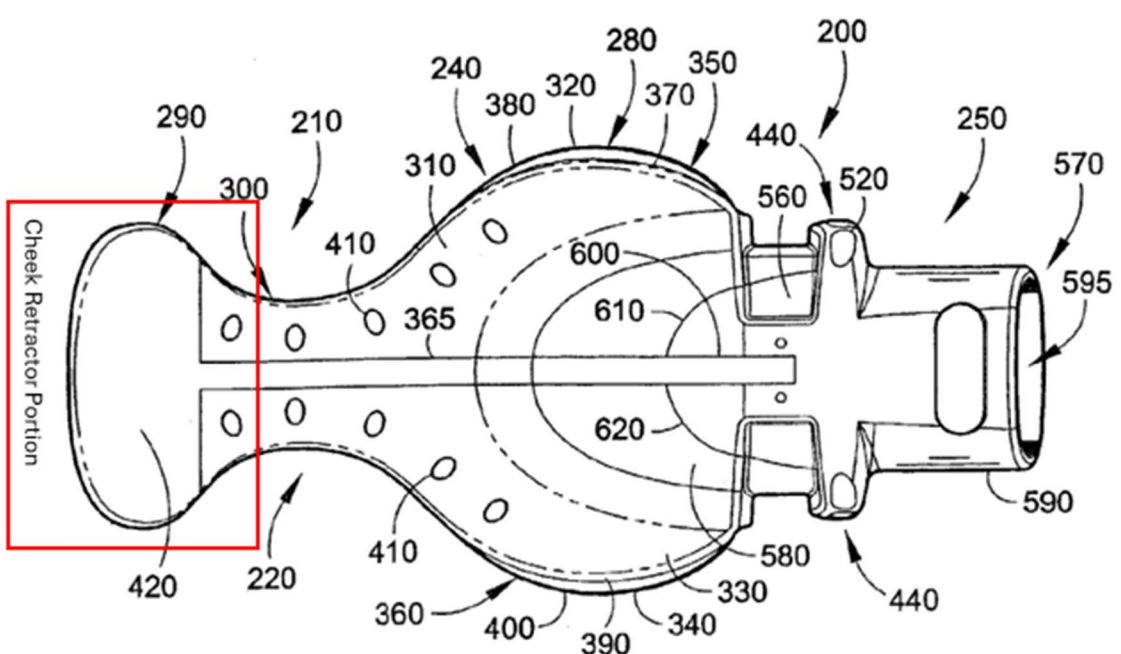
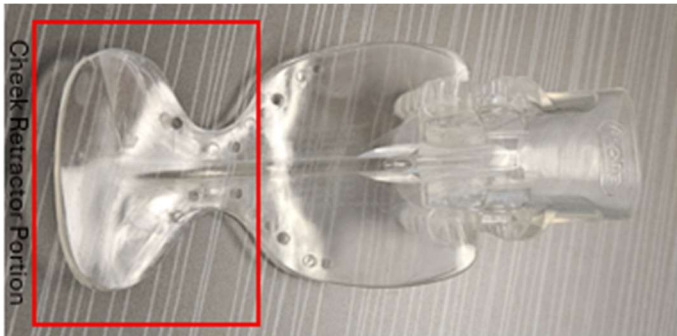
The '217 Patent	Exemplary Disclosures in the Prior Art
	 <i>FIG. 5</i>

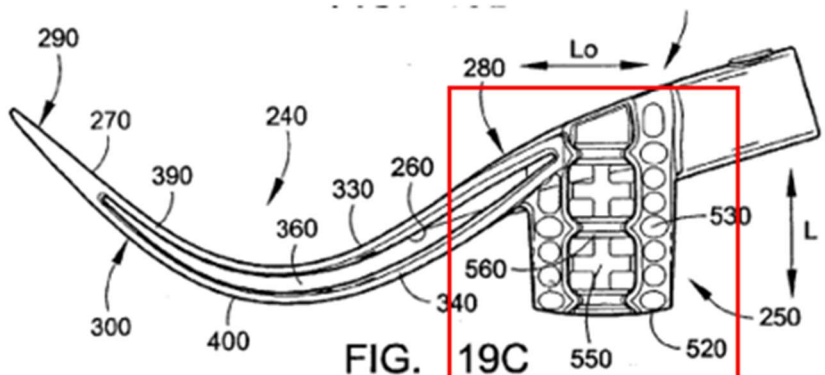
The '217 Patent	Exemplary Disclosures in the Prior Art
	 To the extent Nguyen fails to teach any limitation 17(d), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of the above references with those taught below. The resulting combination would satisfy the requirements of the claimed invention. To the extent Hirsch fails to teach limitation 17(d), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of the above references with those taught below. The resulting combination would satisfy the requirements of the claimed invention. As a non-limiting example, Hirsch may be combined with Nguyen. The mouthpiece of Hirsch includes four flaps that tend to collapse under suction. Nguyen teaches a bridge structure 180 that prevents collapse under suction but still allows for passage of fluid. In combination, Hirsch would include a bridge structure that includes an intervening wall with alternating crests and troughs.
17[e] and wherein an	See Limitation 17[d].

The '217 Patent	Exemplary Disclosures in the Prior Art
edge of the span of the at least one intervening wall has a plurality of alternating crests and troughs that extend different distances partially across the interior space, and	
17[f] a neck extending from the second end of the main body portion, wherein a width of the neck is less than a width of the main body portion at the first end,	Both Hirsch and Isolite disclose a neck extending from the second end of the main body portion, wherein a width of the neck is less than a width of the main body portion at the first end:

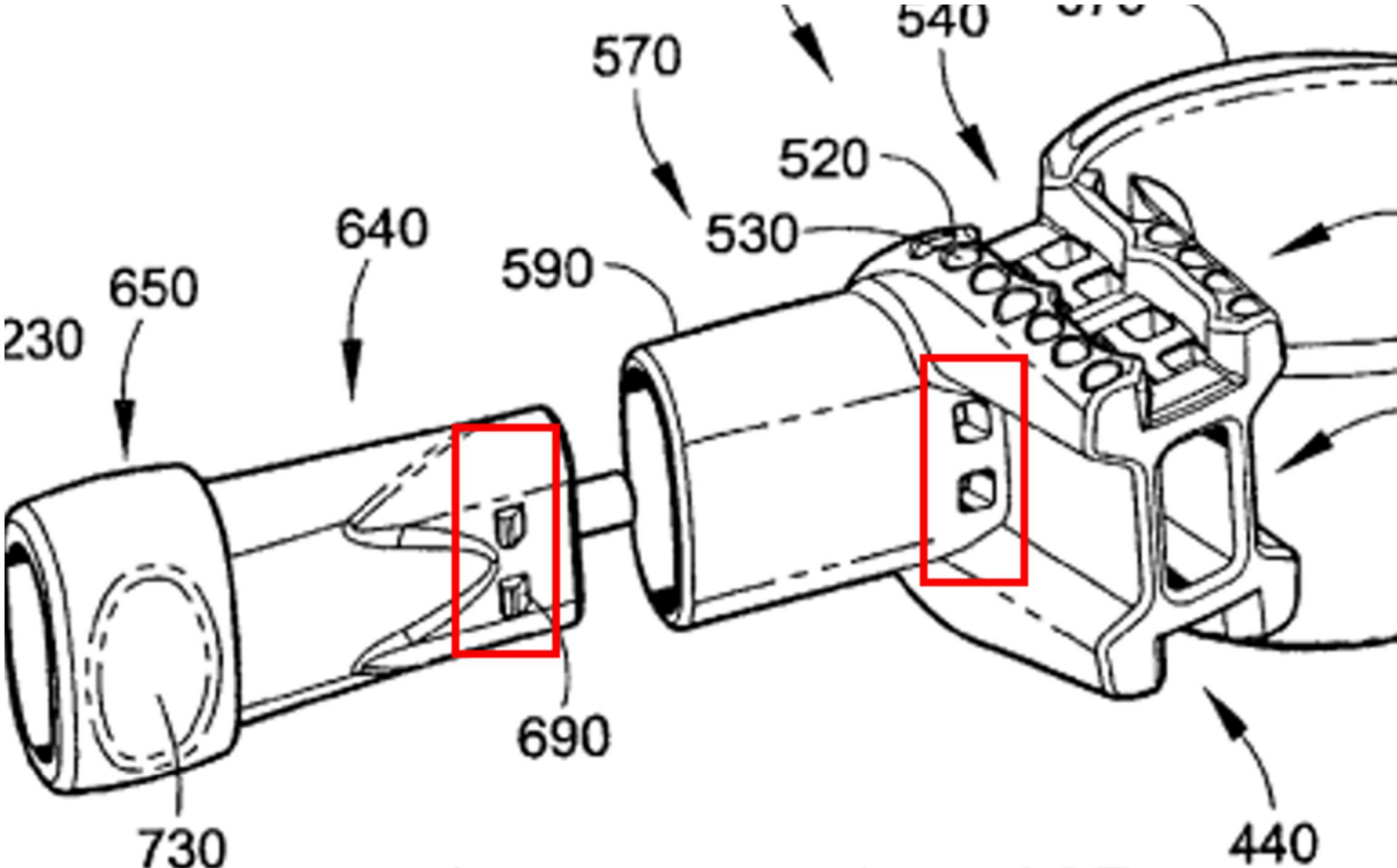


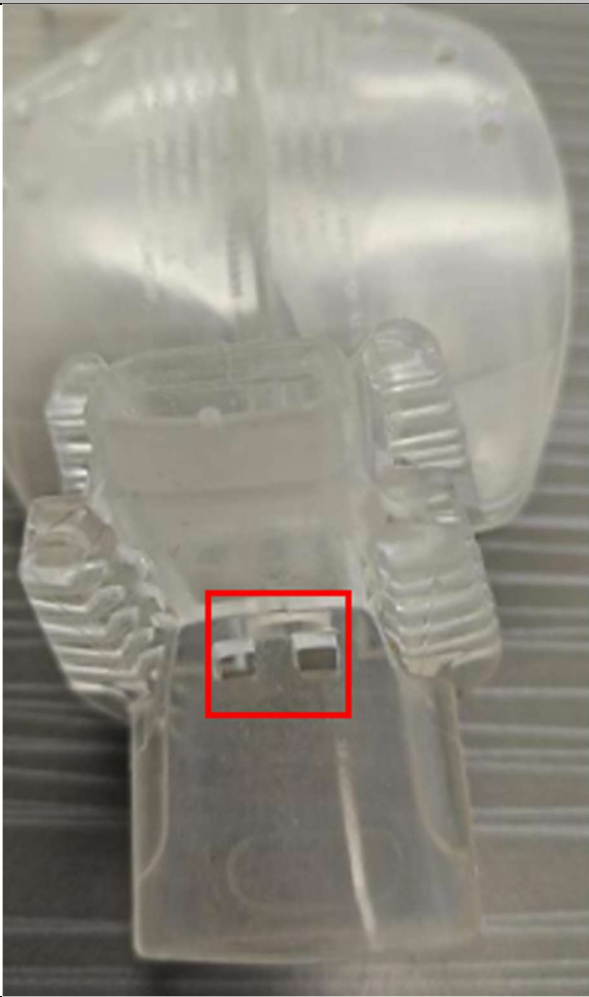
The '217 Patent	Exemplary Disclosures in the Prior Art
17[g] a suction connector portion connected to the first end of the main body portion, the suction connector portion further configured to connect the interior space to a vacuum suction source; and	Hirsch and Isolite Mouthpiece both disclose “a suction connector portion connected to the first end of the main body portion, the suction connector portion further configured to connect the interior space to a vacuum suction source”  FIG. 19D 

The '217 Patent	Exemplary Disclosures in the Prior Art
17[h] a cheek retractor portion connected to the neck that extends from the second end of the main body portion, wherein the width of the neck is less than a width of the cheek retractor portion.	Hirsch and Isolite both disclose a “cheek retractor portion connected to the neck that extends from the second end of the main body portion, wherein the width of the neck is less than a width of the cheek retractor portion:”  FIG. 19A 

The '217 Patent	Exemplary Disclosures in the Prior Art
18 The mouthpiece of claim 17, wherein the at least one intervening wall includes a plurality of portions of varying heights relative to a longitudinal axis of the mouthpiece.	When Hirsch or Isolite Mouthpiece is modified as discussed in limitation 17, the simple cut across the middle of the original sidewall forms two intervening walls, each with an edge having alternating crests and troughs that extend different distances across the span.
19 The mouthpiece of claim 17, further comprising a bite block integrated to the suction connector portion, wherein the bite block provides crush-resistance during biting by a patient.	Both Hirsch and Isolite Mouthpiece disclose a bite block integrated to the suction connector:  FIG. 19C

The '217 Patent	Exemplary Disclosures in the Prior Art
	
20 The mouthpiece of claim 17, wherein the main body portion, the suction connector portion, and the cheek retractor portion are formed by injection-molding as one piece.	Both Hirsch and Isolite Mouthpiece disclose a mouthpiece formed by injection molding as one piece. Hirsch Abstract. 
21 The mouthpiece	Hirsch and Isolite Mouthpiece each disclose a suction connector portion comprises a cutout corresponding to a protrusion on a vacuum adapter to provide an interlocking fit:

The '217 Patent	Exemplary Disclosures in the Prior Art
of claim 17, wherein the suction connector portion comprises a cutout corresponding to a protrusion on a vacuum adapter to provide an interlocking fit.	 FIG. 18B

The '217 Patent	Exemplary Disclosures in the Prior Art
	
22 The mouthpiece of claim 17, where in the suction connector portion connects to	See Claim 17.

The '217 Patent	Exemplary Disclosures in the Prior Art
the vacuum suction source, wherein activation of the vacuum suction source provides suction of fluids from the interior space of the main body portion.	
23 The mouthpiece of claim 22, wherein the activation of the vacuum suction source further draws fluids from an exterior of the main body portion into the interior space of the main body portion.	<i>See Claim 17.</i>