EXHIBIT F-0
Initial Invalidity Chart for U.S. Patent No. 12,167,948

US 12,167,948	Prior Art
Independent Claim 20. A mouthpiece comprising:	See Claim 17 of Ex. D-0.
Limitation 20(a): a main body portion comprising:	See Claim 17 of Ex. D-0.
Limitation 20(b): a first wall that includes two edges,	See Claim 17 of Ex. D-0.
Limitation 20(c): a second wall set at a distance from the first wall, wherein the first wall and the second wall define an interior space that corresponds to the distance between the first wall and the second wall;	See Claim 17 of Ex. D-0.
Limitation 20(d): wherein the first wall is configured at the two edges to have a ridged configuration with a plurality of ridges extending different distances partially across the distance between the first wall and the second wall, the two edges of the first wall being unconnected to the second wall, the plurality of ridges forming an open-meshed configuration between the first and second walls to allow for suction of fluids from a patient's mouth into the interior space between the first and second walls; and	See Claim 17 of Ex. D-0.
Limitation 20(e): a suction connector portion extending from a first end of the main body portion, wherein the suction connector portion includes an evacuation conduit opening into the interior space of the main body portion; and	See Claim 17 of Ex. D-0.

Solmetex Ex. 2014
Ascentcare Dental Products v. Solmetex - PGR2025-00058

Limitation 20(f): a cheek retractor portion connected to a second end of the main body portion.	See Claim 17 of Ex. D-0.
Claim 21. The mouthpiece of claim 20, wherein the cheek retractor portion is connected to a neck of the main body portion, wherein the neck extends from the second end of the main body portion.	See Claim 17 of Ex. D-0.
Claim 22. The mouthpiece of claim 21, wherein a width of the cheek retractor portion is greater than a width of the neck.	See Claim 17 of Ex. D-0.
Independent Claim 23. A mouthpiece comprising:	See Claim 17 of Ex. D-0.
Limitation 23(a): a main body portion comprising:	See Claim 17 of Ex. D-0.
Limitation 23(b): a first wall that includes two edges,	See Claim 17 of Ex. D-0.
Limitation 23(c): a second wall set at a distance from the first wall, wherein the first wall and the second wall define an interior space that corresponds to the distance between the first wall and the second wall;	See Claim 17 of Ex. D-0.
Limitation 23(d): wherein the first wall is configured at the two edges to have a ridged configuration with a plurality of ridges extending different distances partially across the distance between the first wall and the second wall, the two edges of the first wall being unconnected to the second wall, the plurality of ridges forming an open-meshed configuration between the first and second walls to allow for suction of fluids from a patient's mouth into the interior space between the first and second walls; and	See Claim 17 of Ex. D-0.

Limitation 23(e): a suction connector portion extending from a first end of the main body portion, wherein the suction connector portion includes an evacuation conduit opening into the interior space of the main body portion; and	See Claim 17 of Ex. D-0.
Limitation 23(f): a neck that extends from the second end of the main body portion.	See Claim 17 of Ex. D-0.
Claim 24. The mouthpiece of claim 23, wherein the main body portion further includes a plurality of perforations that open into the interior space, the plurality of perforations being located in the first wall and in the neck.	See Claim 19 of Ex. A-0. Nguyen '232: FIG. 1B, Ref. 140 Hirsch 2: FIG. 5 Hirsch '389: FIG. 19A, Ref 410
Claim 25. The mouthpiece of claim 23, further comprising a connector wall that connects the first wall to the second wall, the connector wall extending within the interior space along a longitudinal axis of the main body portion.	See Claim 17 of Ex. D-0.
Claim 26. The mouthpiece of claim 25, wherein the connector wall extends through the neck at the second end of the main body portion.	See Claim 17 of Ex. D-0.
Claim 27. The mouthpiece of claim 26, wherein the main body portion is formed of a flexible material that allows for the two edges of the first wall to be pulled away from the second wall.	Hirsch '321: Col. 11 Ln. 19–35 Black: Claims 3–7, 33, 34 KR101217041: [0025] KR101082826: "[0032] The described mouse prop (100) is designed to be inserted into the oral cavity, made of synthetic materials such as clear silicone" & "the mouse prop can be sterilized after use"

	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” CN108042228: “The tongue plate portion 1 requires soft texture and does not cause damage to the tongue. Therefore, in some embodiments, the tongue plate portion 1 is made of medical silicone material, but from the standpoint of single use and cost saving, The tongue plate 1 can be made of plastic material.” CN105342717: In series, since the barrier sheet and the fins thereon are made of an approximately transparent silicone material, the LED lamp can provide good illumination for the entire mouth after being illuminated, and the doctor has a very simple operation and a very good field of vision. 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 ‘389: “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 28. The mouthpiece of claim 23, wherein the main body portion is formed of a flexible material that allows for the first wall to be pulled away from the second wall.	See Claim 27.
Claim 29. The mouthpiece of claim 28, further comprising a connector wall that connects the first wall to the second wall, the connector wall extending within the interior space along a longitudinal axis of the main body portion.	See Claim 17 of Ex. D-0.
Claim 30. The mouthpiece of claim 29, wherein the connector wall extends along the longitudinal axis along a portion of the main body portion.	See Claim 17 of Ex. D-0.

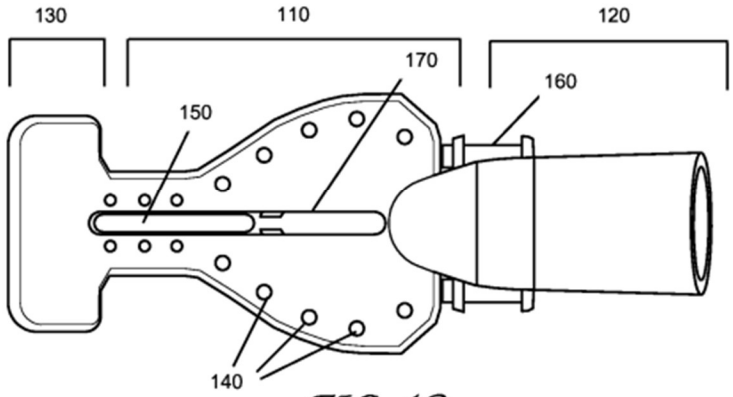
EXHIBIT F-1 (Nguyen or DM1 in View of One or Two of the Skill of a PHOSITA, Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, or Isolite Mouthpiece)
Initial Invalidity Chart for U.S. Patent No. 12,167,948

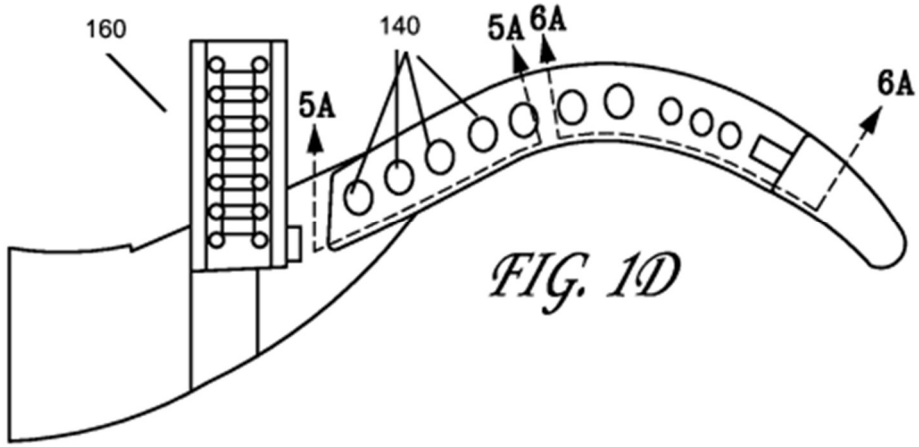
Ascentcare incorporates by reference the cover pleading to its Initial Invalidity Contentions. These Initial Invalidity Contentions, including these claim charts, are not an admission regarding claim scope or the accused products, and, in particular, that the accused products, including any current or 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.

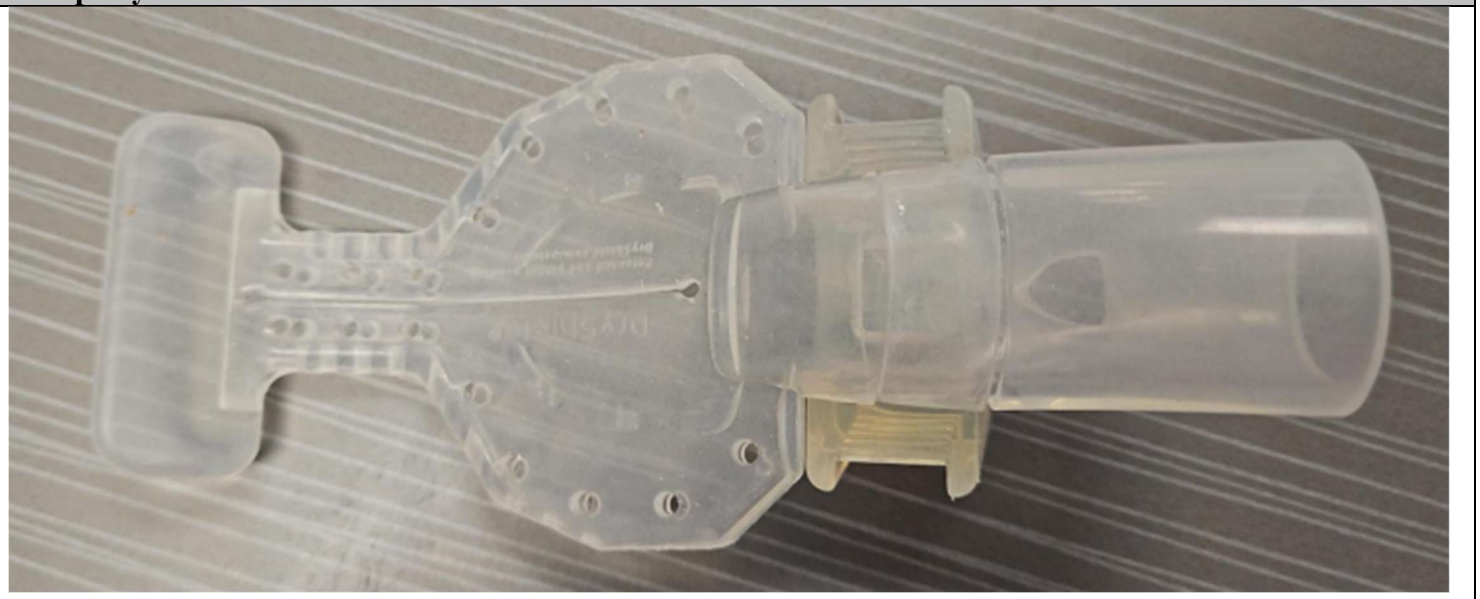
Pursuant to AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, Nguyen, Black, Hirsch, and Hirsch 2 were patented or described in a printed publication more than one year prior to the priority date of the '948 Patent, and therefore renders obvious, either alone or in combination 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. 12,167,948.

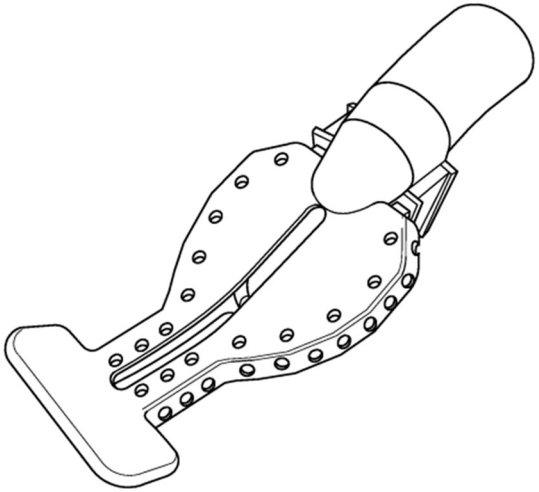
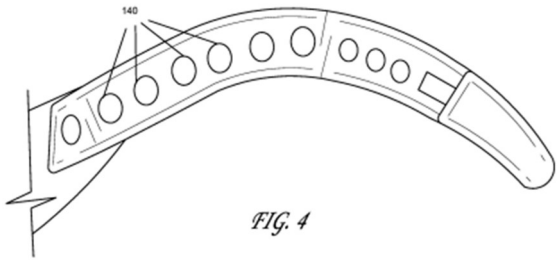
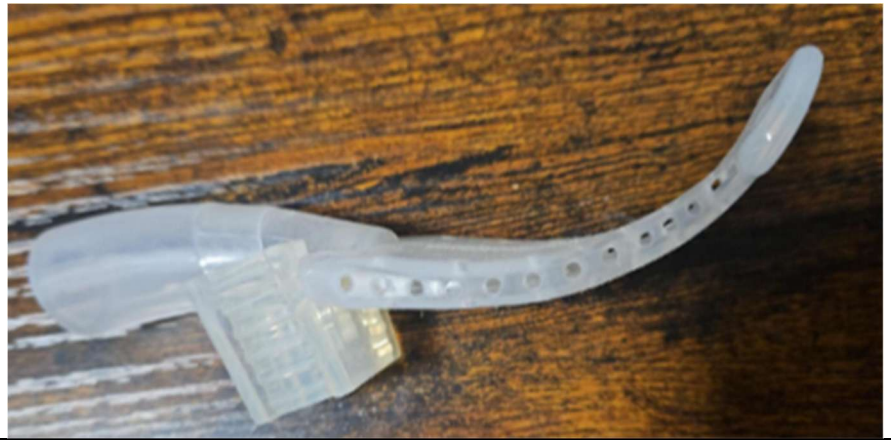
Pursuant to AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, AirBug, the Mr. Thirsty Mouthpiece, Isolite Mouthpiece, and DM1[1] were on sale or in public use more than one year prior to the priority date of the '948 Patent, and therefore renders obvious, either alone or in 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. 12,167,948.

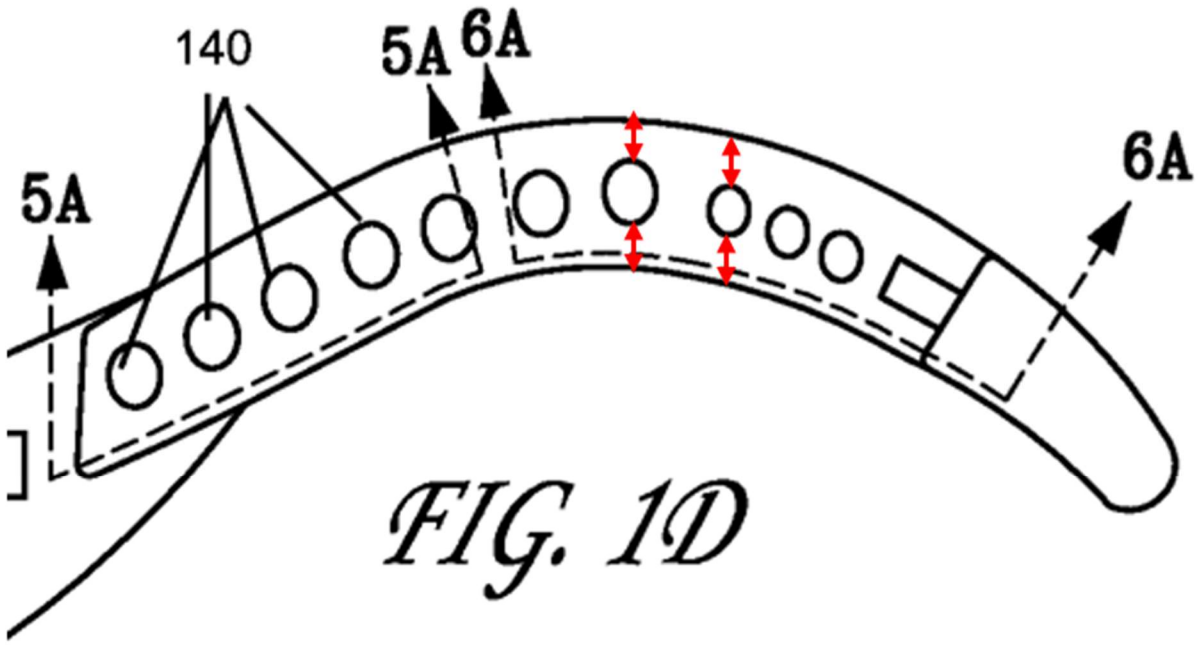
[1] It is Ascentcare's understanding that several of the embodying products discussed herein may have multiple embodiments over the years. Discovery is ongoing, and Ascentcare has issued subpoenas seeking the prior art embodiments. To the extent that Ascentcare currently relies on more current embodiments 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.

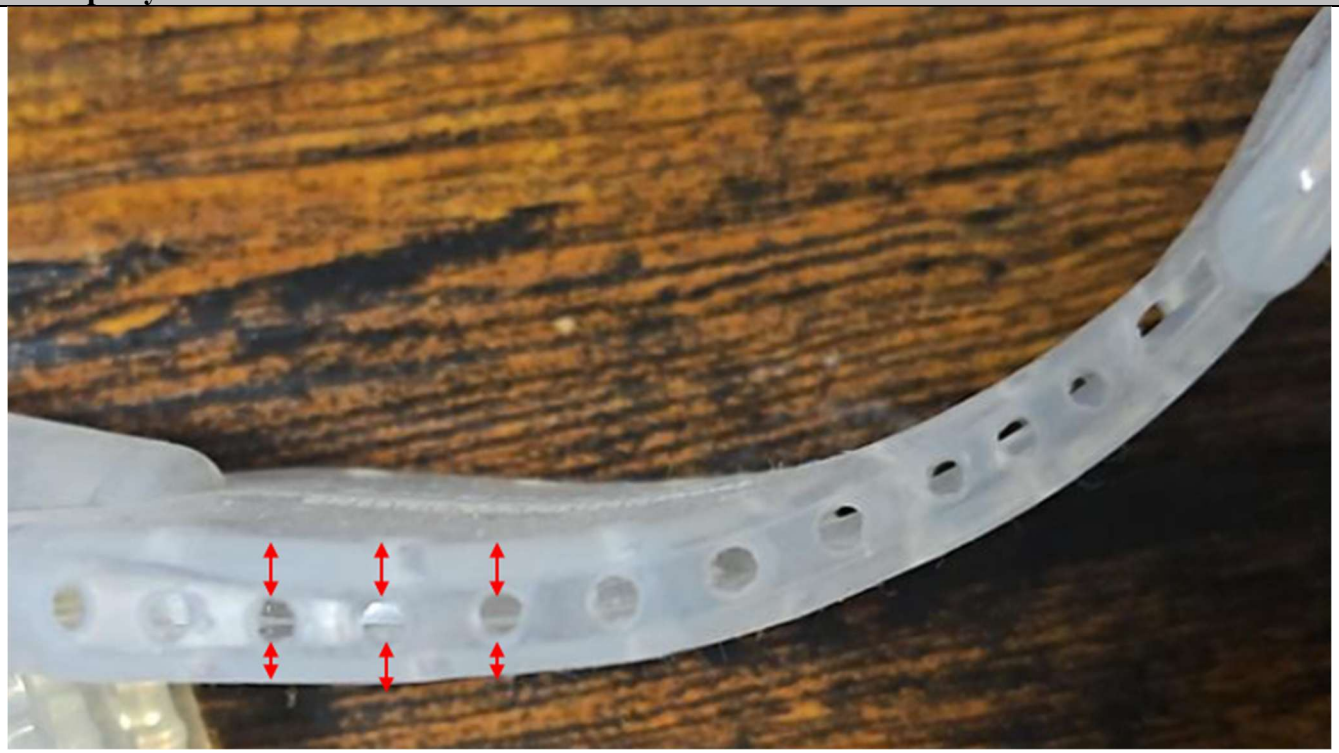
The ’948 Patent	Exemplary Disclosures in the Prior Art
20[a] A dental mouthpiece comprising:	To the extent the preamble is limiting, each of the references discussed herein is a dental mouthpiece.
20[b] a main body portion comprising: a first wall that includes two edges, a second wall set at a distance from the first wall, wherein the first wall and the second wall define an interior space that corresponds to the distance between the first wall and the second 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.  *FIG. 1B*

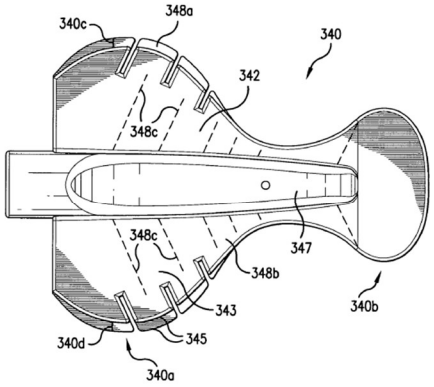
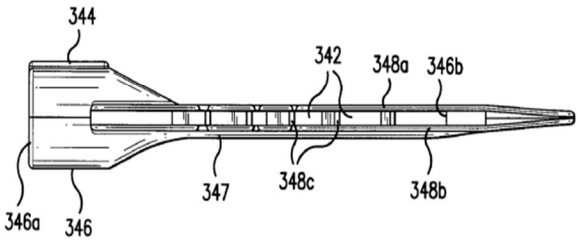
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1D Also, the main body portion 110 is formed at the central part of a curve with the posterior wall formed outside the curve and the anterior wall formed inside the curve. Nguyen, 6:4-6. DM1 also discloses a “a main body portion having a first 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:”

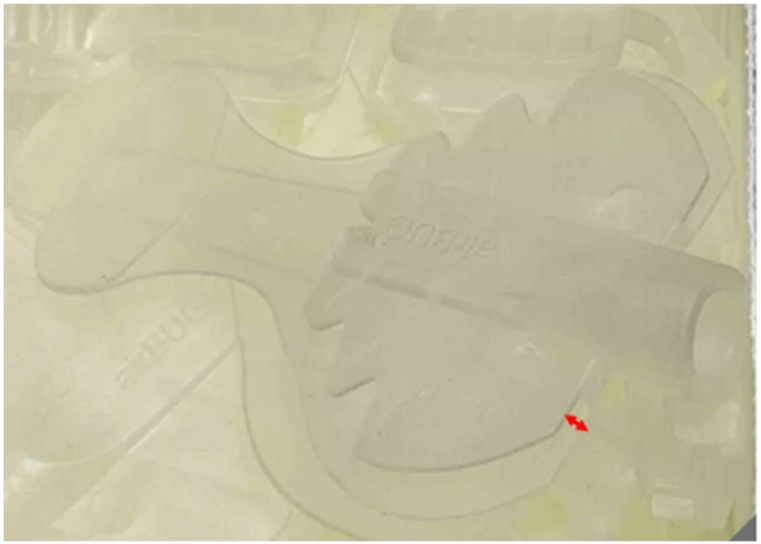
The ’948 Patent	Exemplary Disclosures in the Prior Art
	
20[c] wherein the first wall is configured at the two edges to have a ridged configuration with a plurality of ridges extending different distances partially across the distance between the first wall and the second wall,	Nguyen teaches two sidewalls (inferior and superior) each connected to both the anterior and posterior walls. Nguyen, 3:37-54.

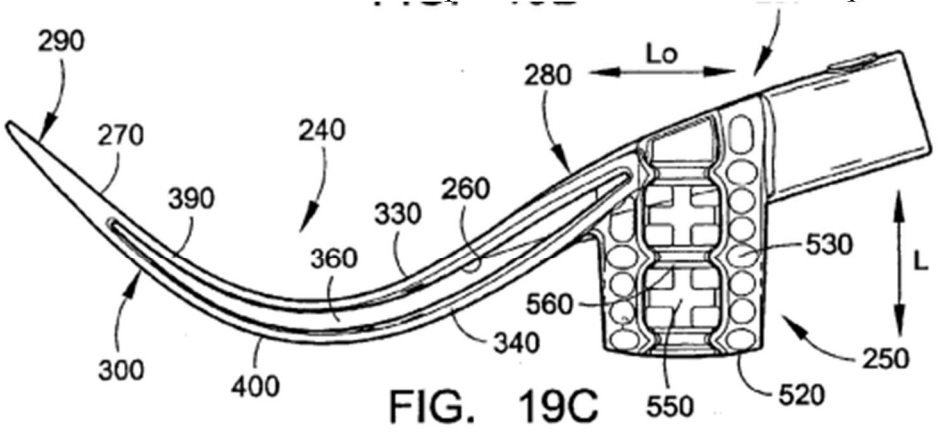
The ’948 Patent	Exemplary Disclosures in the Prior Art
	  FIG. 4 FIG. 1A Because each sidewall is connected to both the anterior wall and the posterior wall, each sidewall protrudes from the anterior wall along an edge of the anterior wall and each also sidewall protrudes from the posterior wall along an edge of the posterior wall. *Id.*, *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. 

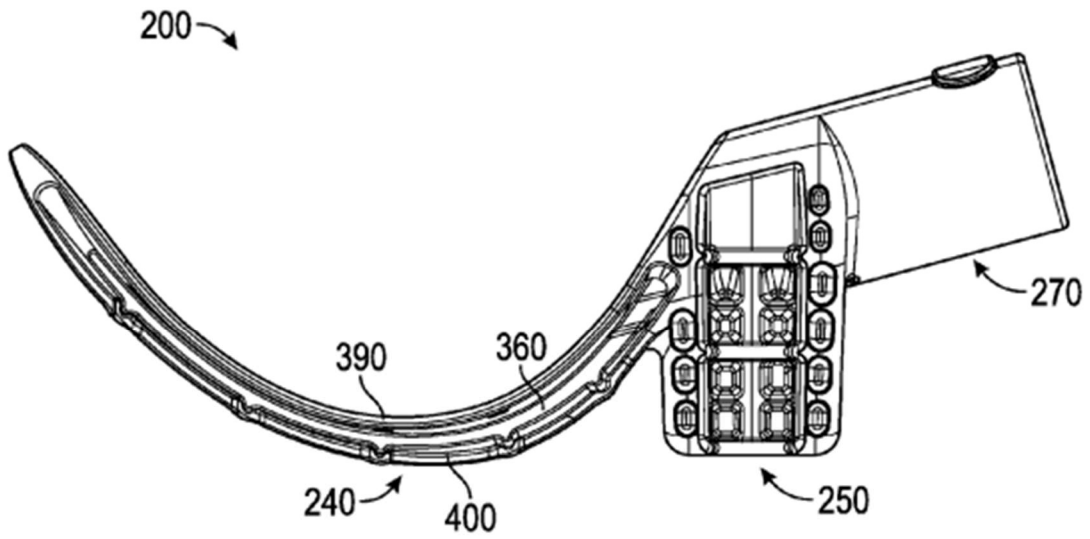
The ’948 Patent	Exemplary Disclosures in the Prior Art
	It appears that under Solmetex’s construction of this patent family (*see e.g.* D1,037,436), Nguyen and DM1 also discloses “partially across the distance” of the interior space as well:  FIG. 1D

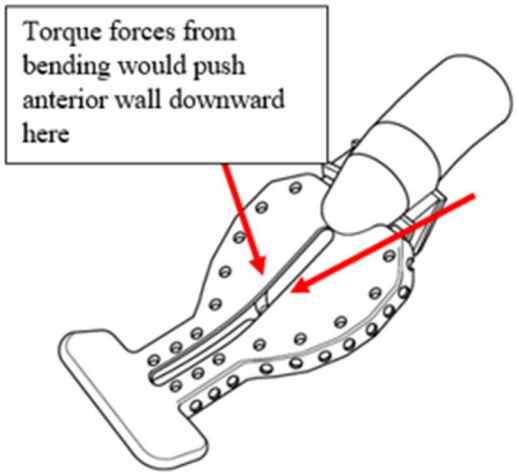
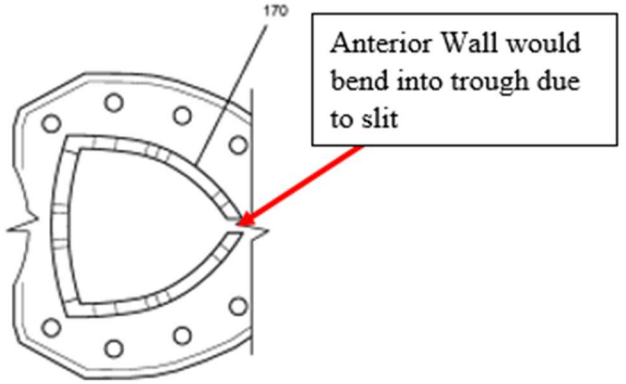
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 To the extent Nguyen and DM1 teaches that the superior and inferior walls span the entire (not “partial”) distance between the anterior and posterior walls, it would have been obvious to open the sidewalls of Nguyen or DM1 in view of one or two 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).

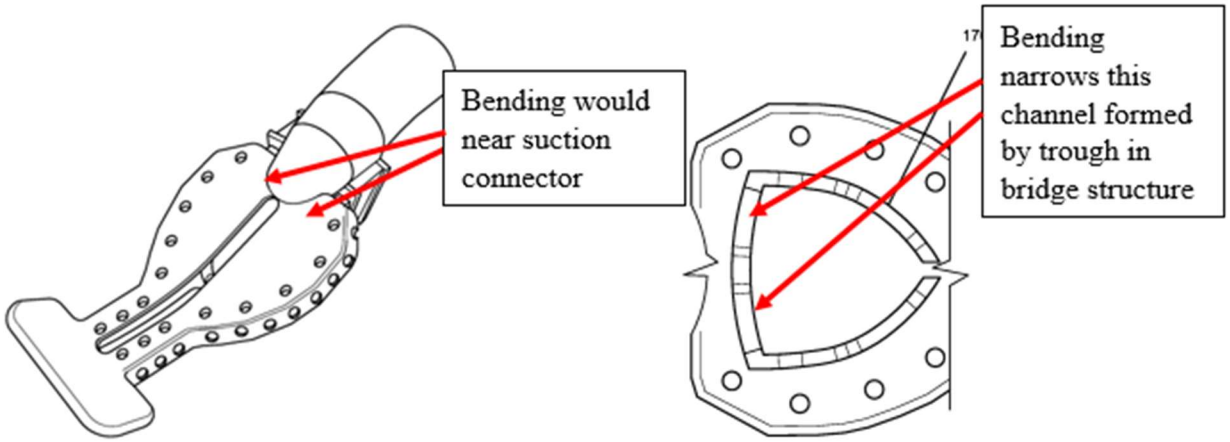
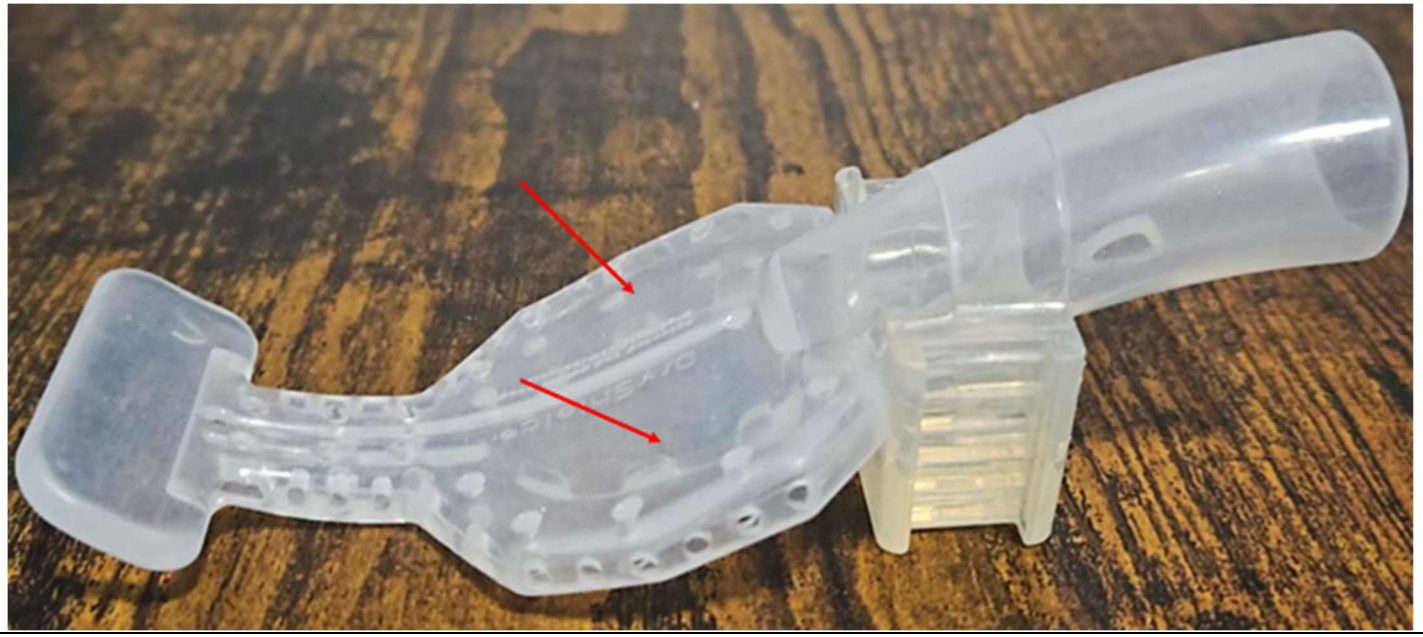
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG.23A  FIG.23C Black explains that an open-sided tongue shield aspirator, which is a dental isolation mouthpiece, facilitates enhanced fluid and debris aspiration as well as easier bending for fitting into the patient’s mouth. Black, 17:47-54. 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. *Id*. 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). *KSR Int'l Co. v. Teleflex Inc*., 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). *Id*. 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 Ngyuen 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.

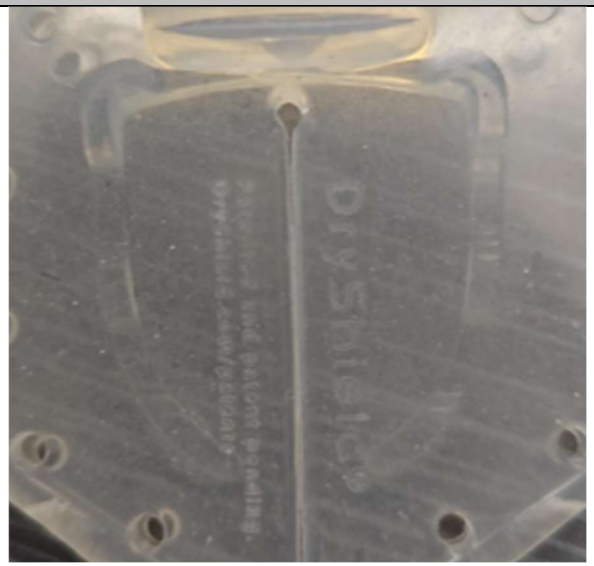
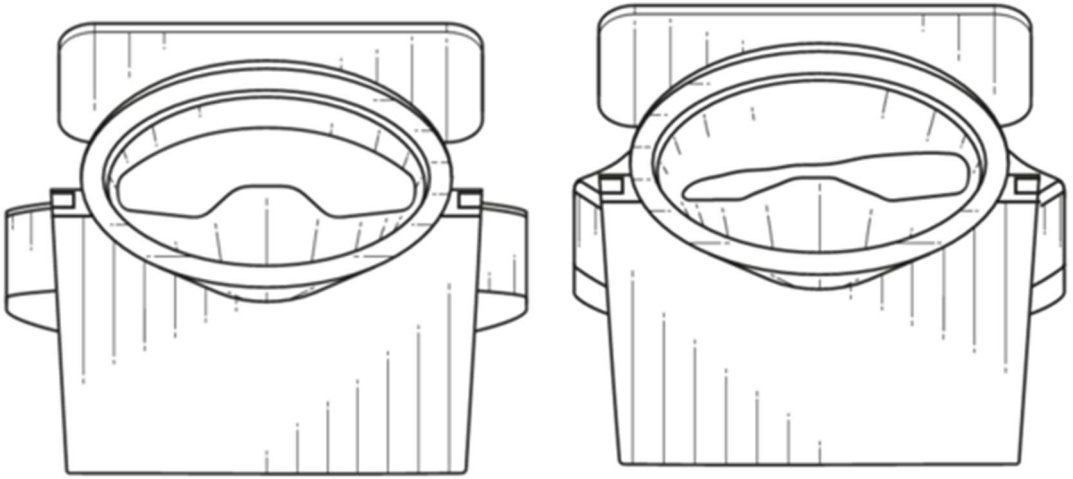
The ’948 Patent	Exemplary Disclosures in the Prior Art
	A PHOSITA would understand that when two parallel walls are connected at their edges and spaced apart, any bending force from mouth tissue would force the two walls to bend along different paths. The “outer” (posterior) wall would bend at a different 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. *Id.* 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. *Id.* This is the basic geometric constraint of bending layered materials. *Id.* 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. *Id.* In addition to Black, Mr. Thirsty and AirBug teach the same open walls: 

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 Hirsch, Hirsch 2, and the Isolite Mouthpiece likewise teach the same open walls.  FIG. 19C

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 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

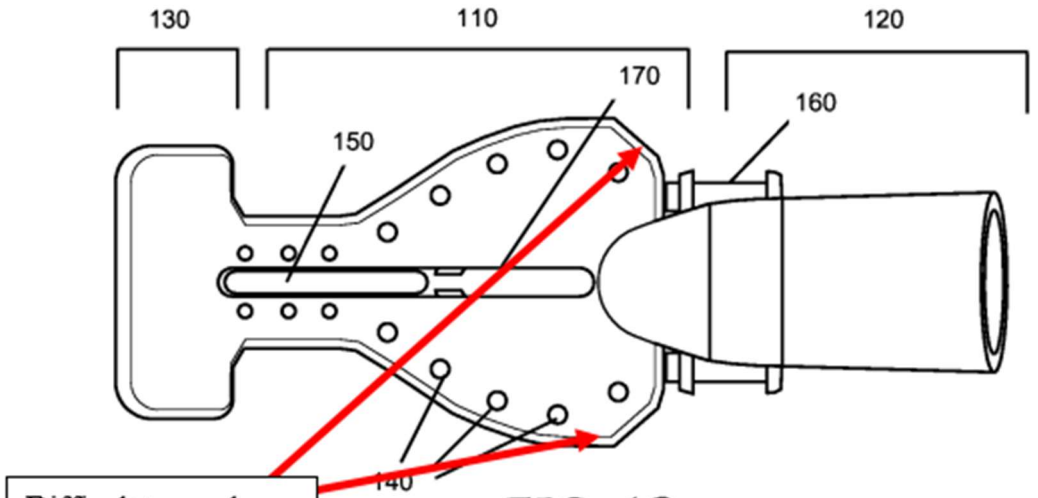
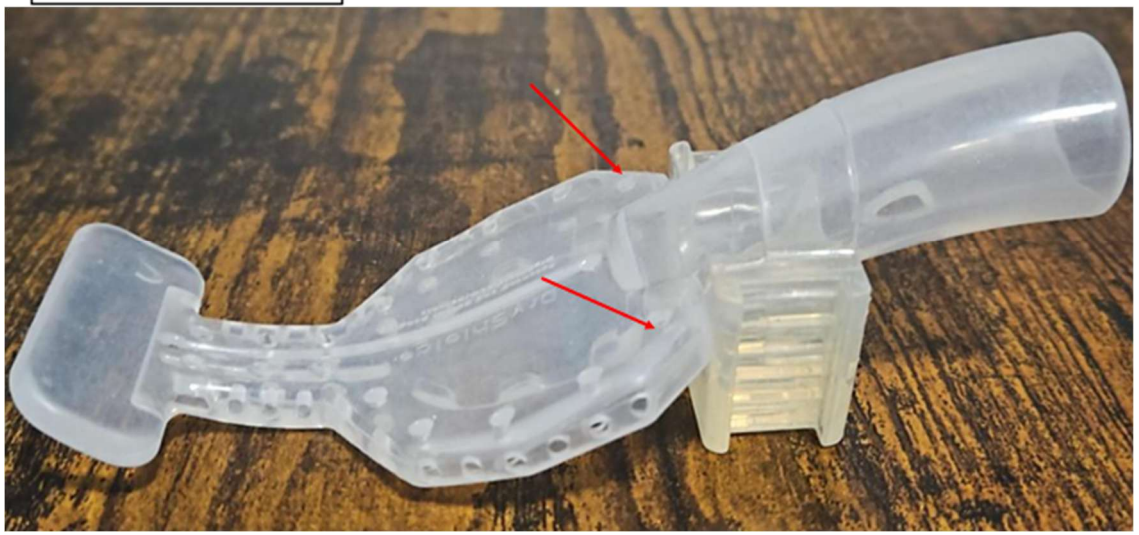
The ’948 Patent	Exemplary Disclosures in the Prior Art
	the mouthpiece – an important suction location, as this is where the dental operation occurs. Nguyen, 2:10-16, 4:38-56.  FIG. 1A  FIG. 5 In addition, a PHOSITA would recognize that the bending force would further cause bending at the anterior wall 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.

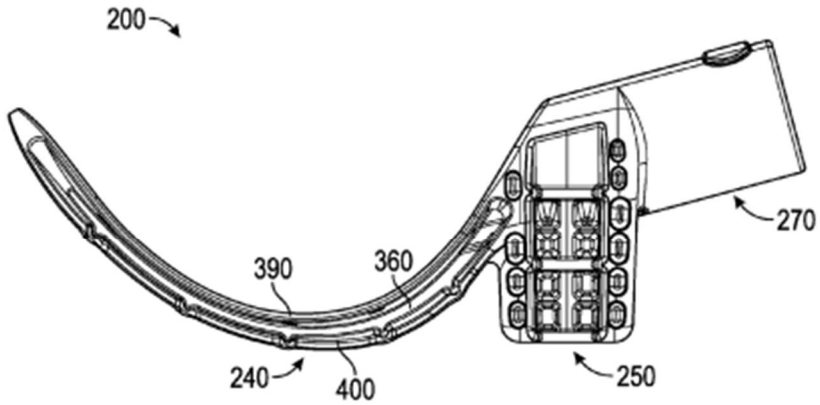
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1A FIG. 5 DM1 teaches the same: 

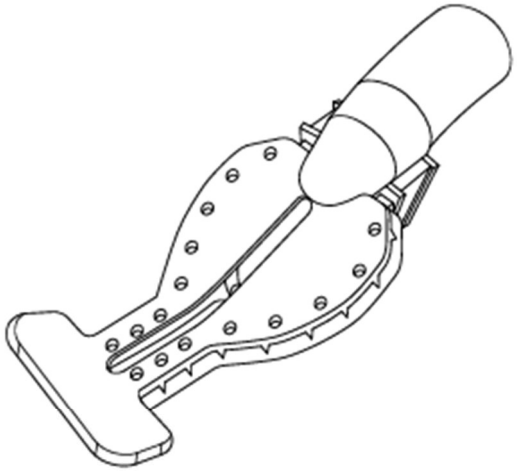
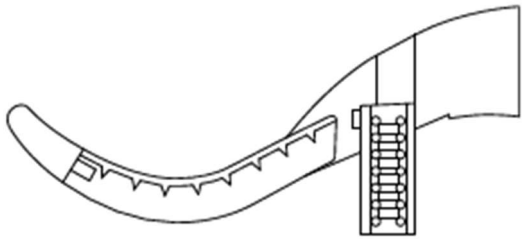
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 As shown above, the anterior wall would bend into a trough in the bridge structure 180 near the suction connector, thereby partially blocking one or both of the suction inlet locations at the suction connector.  no folding force With folding force

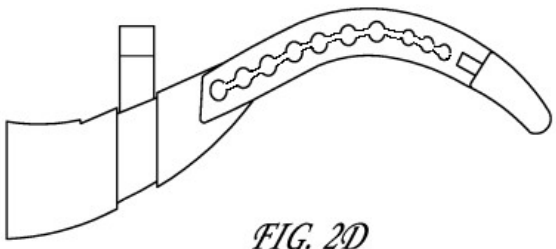
Solmetex Ex. 2014
Ascentcare Dental Products v. Solmetex - PGR2025-00058

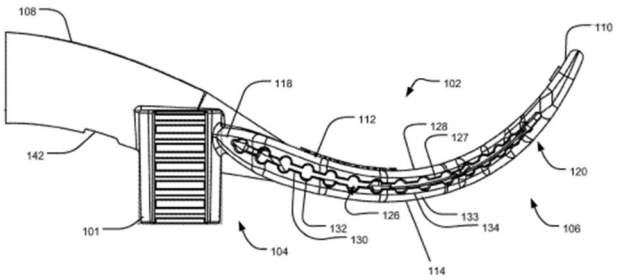
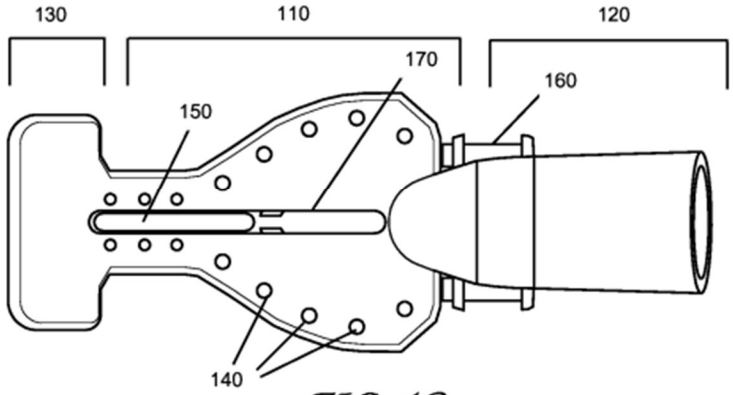
The ’948 Patent	Exemplary Disclosures in the Prior Art
	With that understanding, a PHOSITA would further understand that an unconnected edge would allow the anterior and posterior walls to bend at different radiuses. This is because the anterior wall would not receive the posterior wall’s folding force through the sidewalls (i.e., the torque) as well as any folding force it also received from mouth tissue. *Id*. 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”). *Id*. 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. *Id.* 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 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. *Id*.

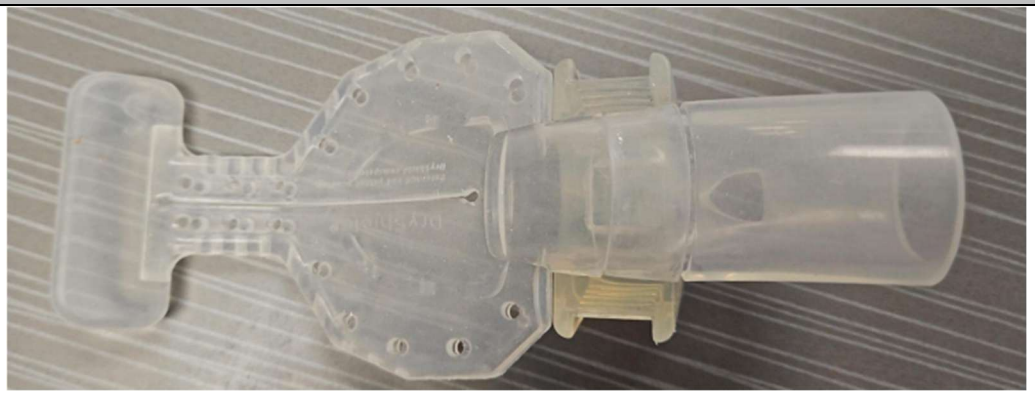
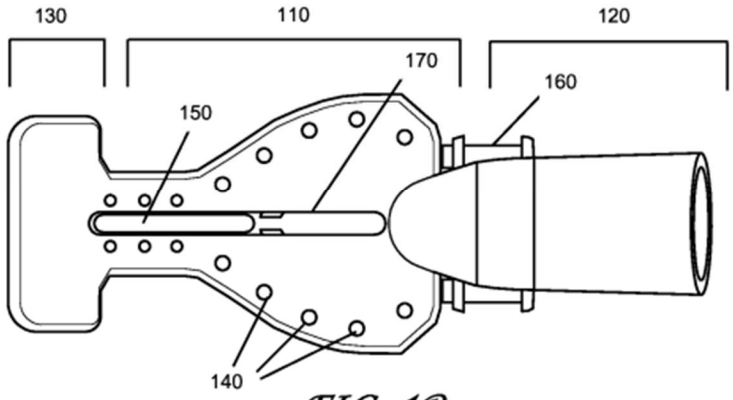
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1B  A PHOSITA would have known that a dental mouthpiece with open sides, such as Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, Isolite Mouthpiece would have been far easier to clean because a brush would remove gunk and bacteria unimpeded 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

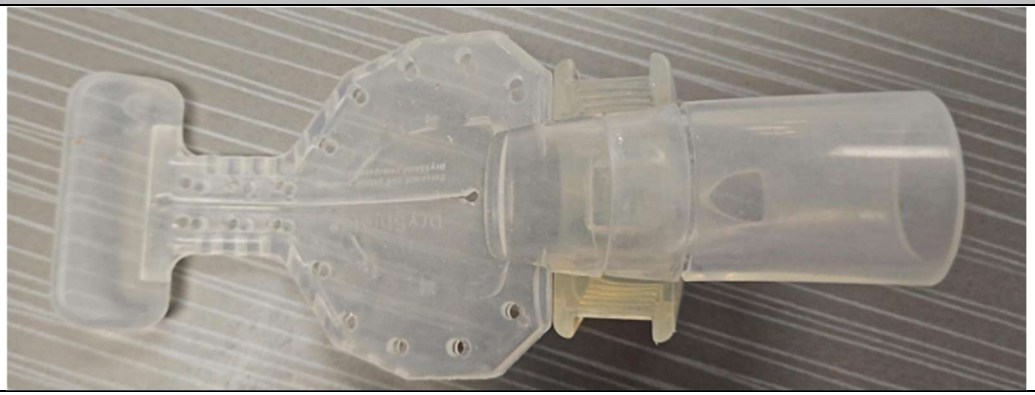
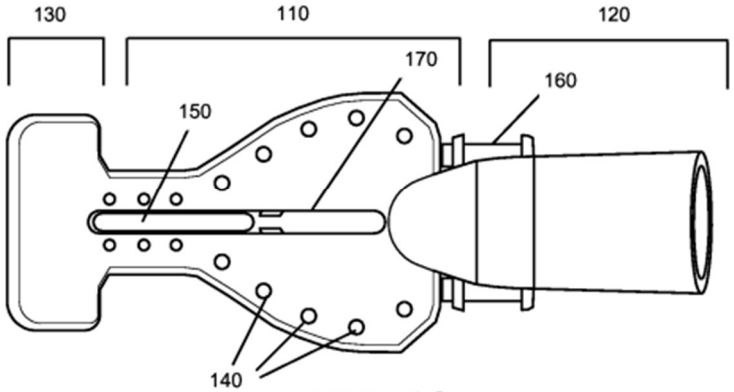
The ’948 Patent	Exemplary Disclosures in the Prior Art
	openings, as opposed to folding back the anterior wall of Nguyen at the slit 170, inserting a brush through the slit 170, and attempting to reach the brush into all small corners formed on the mouthpiece of Nguyen. Nguyen, 4:34-37, FIG. 1B. An open-sided 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, Hirch 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. *Id*.  **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). See annotated Nguyen, FIG. 1A and 1D.

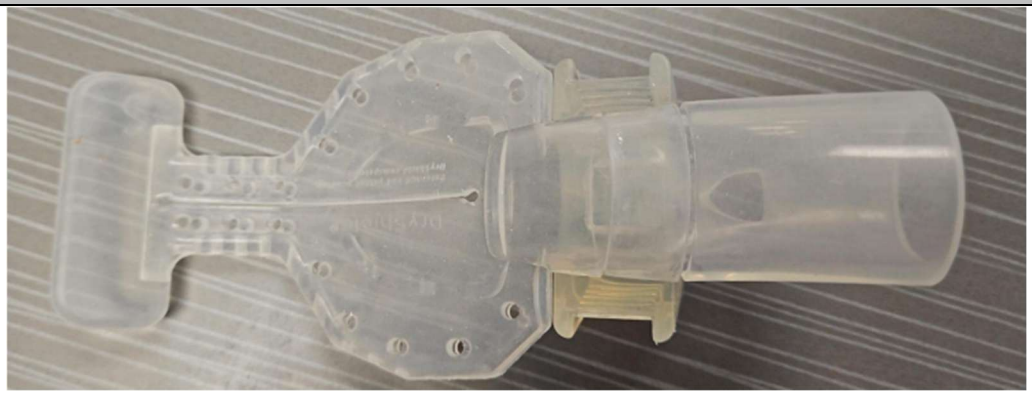
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1A  FIG. 1D A PHOSITA would have expected success in modifying Nguyen or DM1 in view of Hirsch 2 as proposed above because Hirsch 2 explains that a wall having V-shaped grooves assists in suction. Hirsch 2, 3:51-55, 4:4-16. Nguyen in view 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

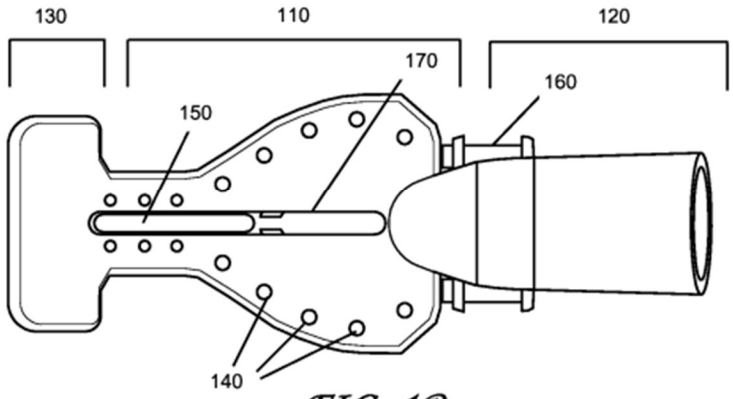
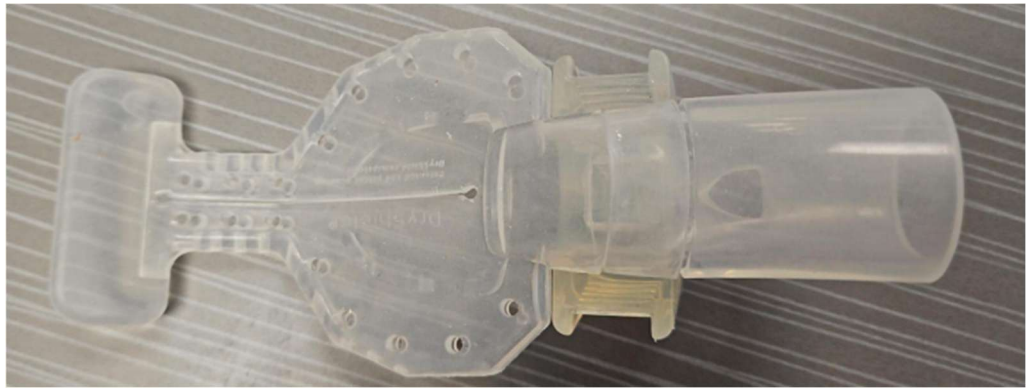
The ’948 Patent	Exemplary Disclosures in the Prior Art
	to maintain anti-collapse structure at the edges of the mouthpiece to avoid the undesirable seal taught by Hirsch. Hirsch, 4:43-67. However, a PHOSITA would know that there must be some inlet for suction to occur, lest the sidewall completely block 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.
20[d] the two edges of the first wall being unconnected to the second wall, the plurality of ridges forming an open-meshed configuration between the first and second walls to allow for suction of fluids from a patient's mouth into the interior space between the first and second walls; and	Notwithstanding the confusing and unsupported claim language, once Nguyen or DM1 are modified by one or two of the skill of a PHOSITA, Black, AirBug, Mr. Thirsty Mouthpiece, Hirsch, Hirsch 2, or Isolite Mouthpiece (discussed above), the plurality of ridges of the ridged configuration would “not connect to the second wall” in the same way shown in the ’948 Patent. Moreover, to the extent that “open meshed configuration” can be understood, Nguyen or DM1 as modified by one or two of a PHOSITA, Black, AirBug, Mr. Thirsty Mouthpiece, Hirsch, Hirsch 2, or Isolite Mouthpiece, results in nearly identical sides as shown in FIG. 6 of the ’948 Patent, which the ’948 Patent describes as an “open-meshed configuration”.  FIG. 2D

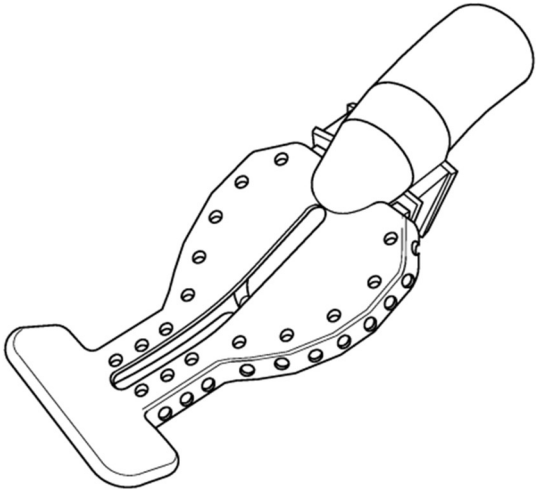
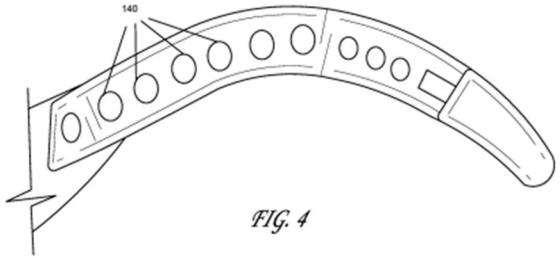
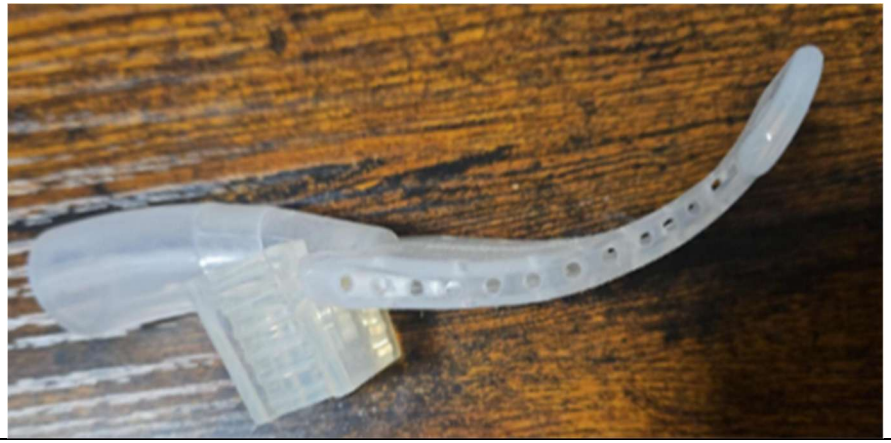
The ’948 Patent	Exemplary Disclosures in the Prior Art
	Nguyen, Fig. 2D (modified to include connecting slit).  FIG. 6
20[e] a suction connector portion extending from a first end of the main body portion, wherein the suction connector portion includes an evacuation conduit opening into the interior space of the main body portion; and	Nguyen teaches 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. Hirsch, 3:20-22, 4:57-63, 6:24-28.  FIG. 1B DM1 teaches the same:

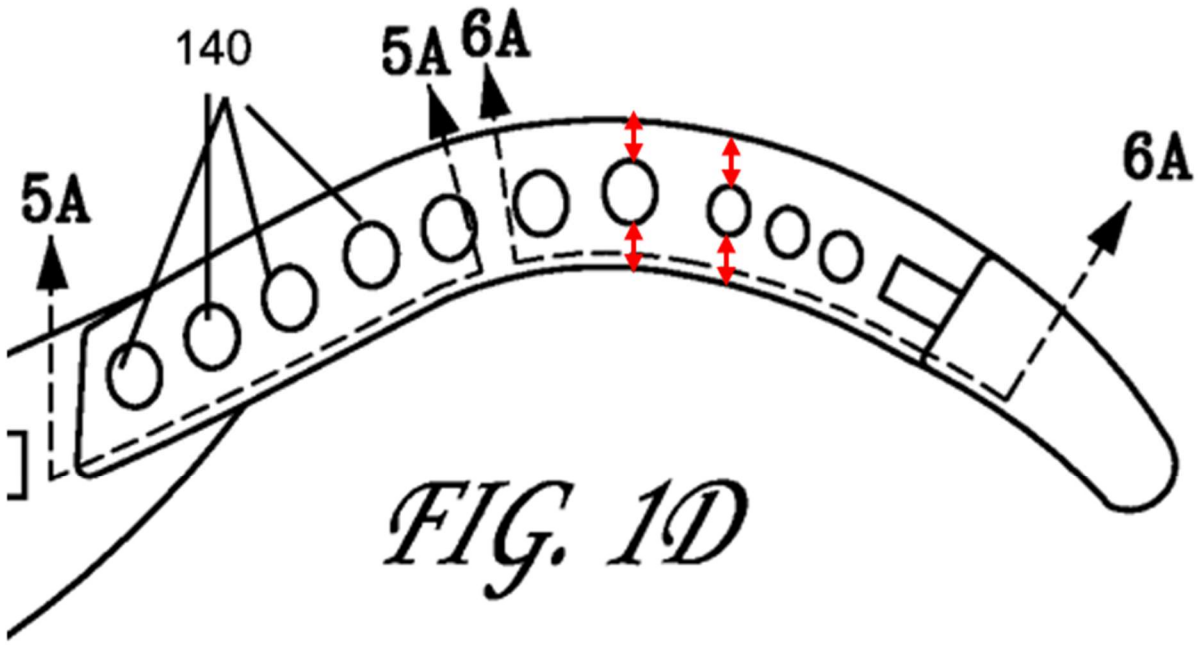
The ’948 Patent	Exemplary Disclosures in the Prior Art
	
20[f] a cheek retractor portion connected to a second end of the main body portion.	Nguyen teaches a cheek retractor 130 formed on a second end of the main body portion 110. Nguyen, 3:20-22.  FIG. 1B DM1 teaches the same:

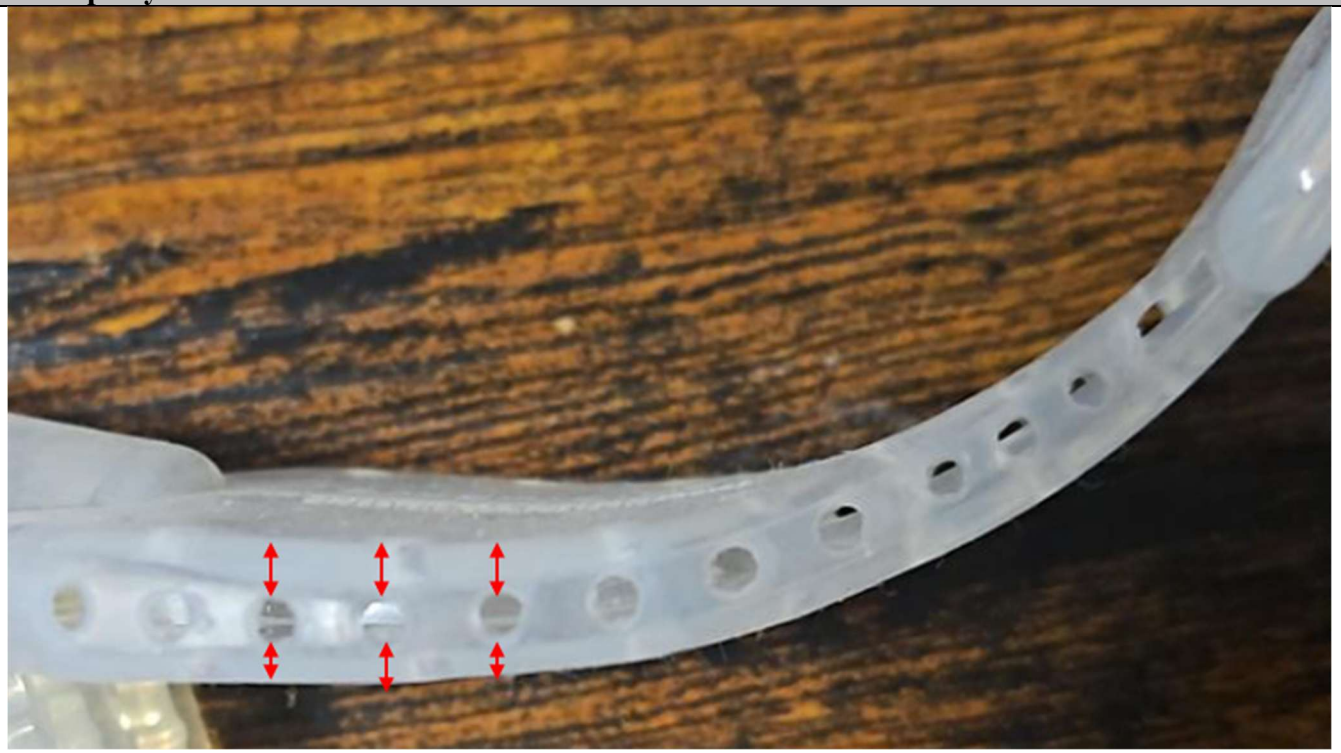
The ’948 Patent	Exemplary Disclosures in the Prior Art
	
21 The mouthpiece of claim 20, wherein the cheek retractor portion is connected to a neck of the main body portion, wherein the neck extends from the second end of the main body portion.	Nguyen teaches a rectangular portion, acting as a neck, extending from the main body portion 110 and connected to the cheek retractor portion 130. Nguyen, 4:4-11. As shown in FIG. 1B, for example, the rectangular portion is narrower than the cheek retractor 130.  FIG. 1B DM1 teaches the same:

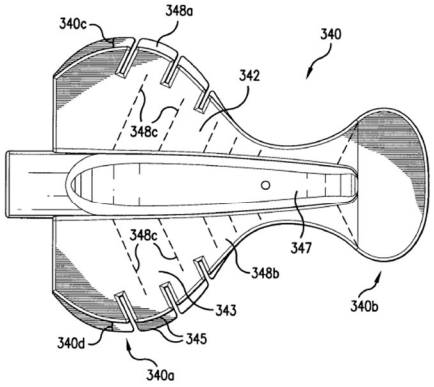
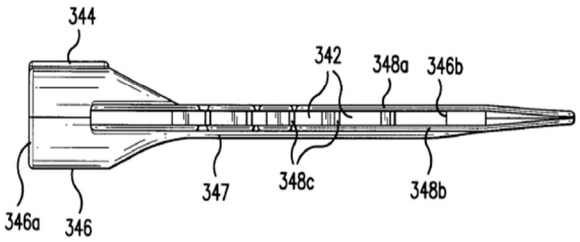
The ’948 Patent	Exemplary Disclosures in the Prior Art
	
22 The mouthpiece of claim 21, wherein a width of the cheek retractor portion is greater than a width of the neck.	*See* Limitation 21.
23[a] A mouthpiece comprising:	To the extent the preamble is limiting, each of the references discussed herein is a dental mouthpiece.
23[b] a main body portion comprising: a first wall that includes two edges, a second wall set at a distance from the first wall, wherein the first wall and the second wall define an interior space that corresponds to the distance between the first wall and the second 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, 3:36-54, 4:6-11, 1:58-60, FIGs. 1D-1E. Nguyen discloses a pocket that is enclosed by an anterior wall, a posterior wall, and sidewalls. Nguyen, 1:58-60, 3:36-54.

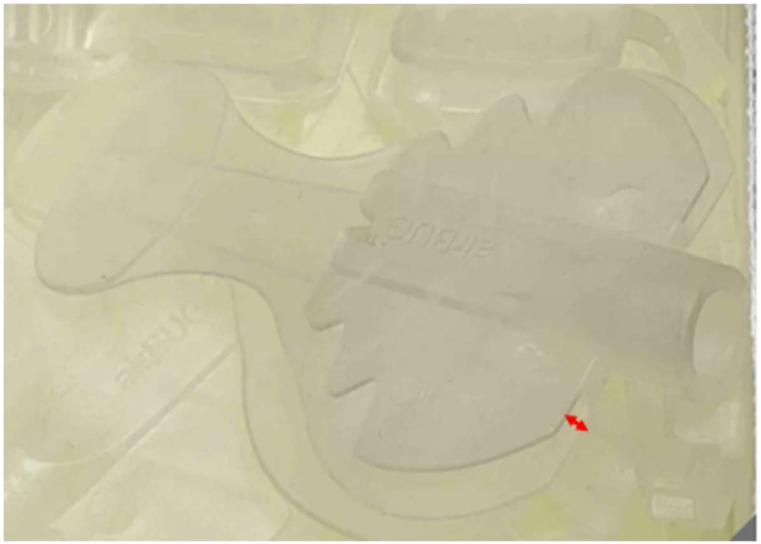
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 *FIG. 1B* DM1 discloses the same: 
23[c] wherein the first wall is configured at the two edges to have a ridged configuration with a plurality of ridges extending different distances partially across the distance	Nguyen teaches two sidewalls (inferior and superior) each connected to both the anterior and posterior walls. Nguyen, 3:37-54.

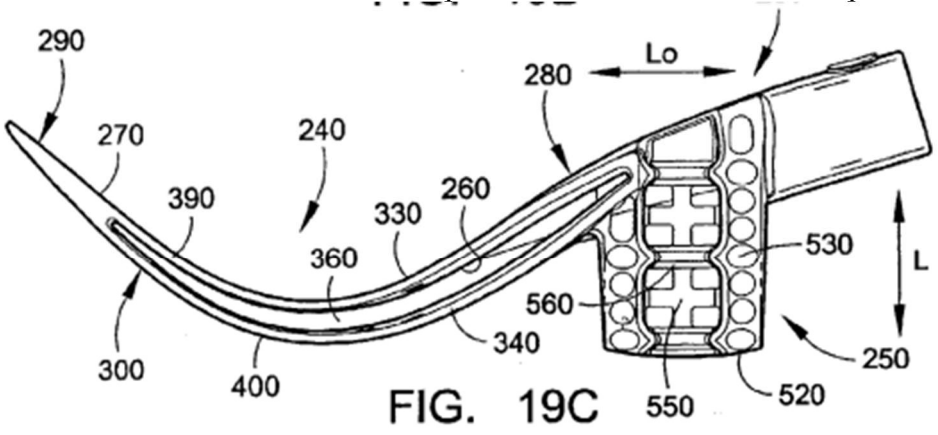
The ’948 Patent	Exemplary Disclosures in the Prior Art
between the first wall and the second wall,	 FIG. 1A  FIG. 4 Because each sidewall is connected to both the anterior wall and the posterior wall, each sidewall protrudes from the anterior wall along an edge of the anterior wall and each also sidewall protrudes from the posterior wall along an edge of the posterior wall. *Id.*, *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. 

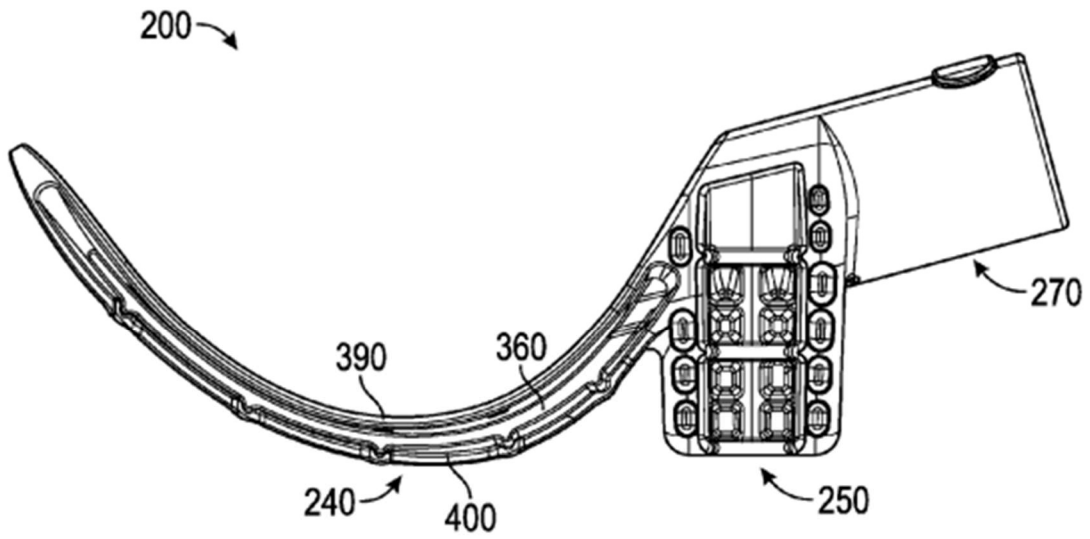
The ’948 Patent	Exemplary Disclosures in the Prior Art
	It appears that under Solmetex’s construction of this patent family (*see e.g.* D1,037,436), Nguyen and DM1 also discloses “partially across the distance” of the interior space as well:  FIG. 1D

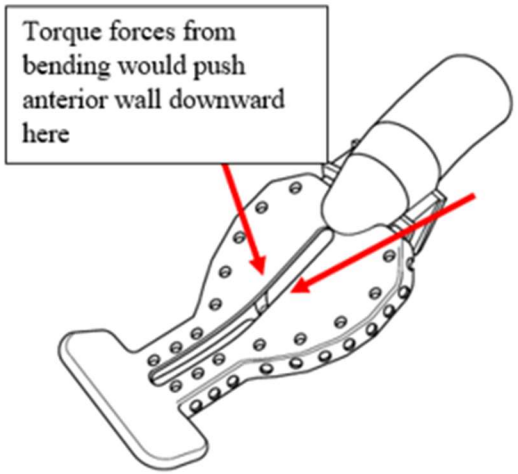
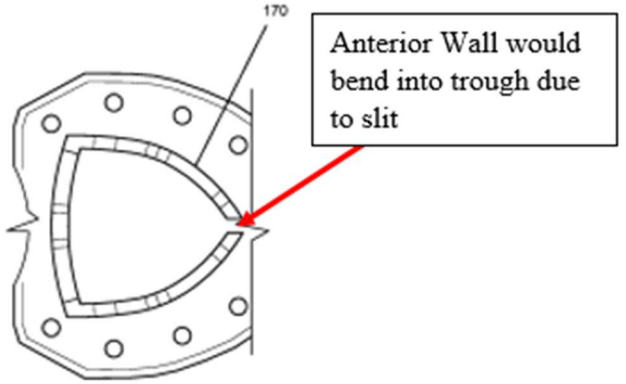
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 To the extent Nguyen and DM1 teaches that the superior and inferior walls span the entire (not “partial”) distance between the anterior and posterior walls, it would have been obvious to open the sidewalls of Nguyen or DM1 in view of one or two 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).

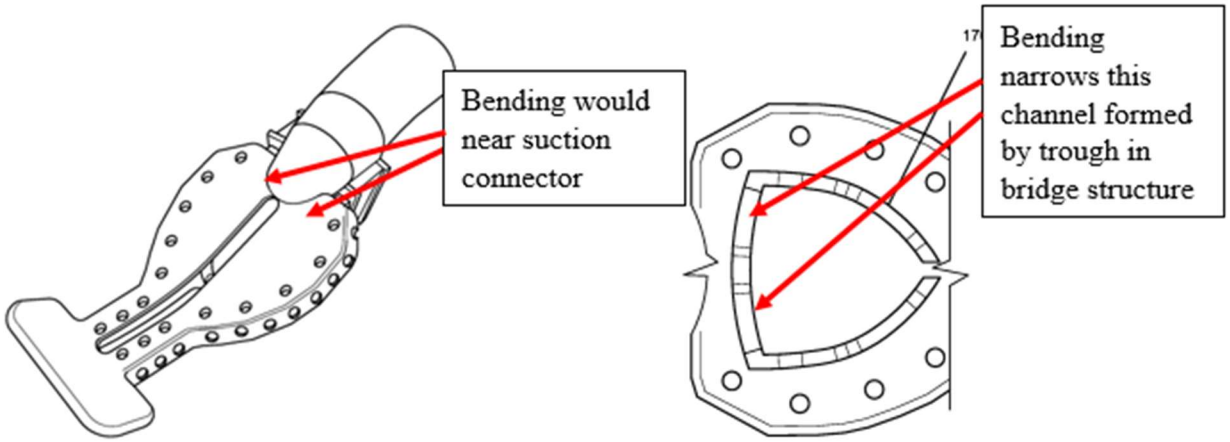
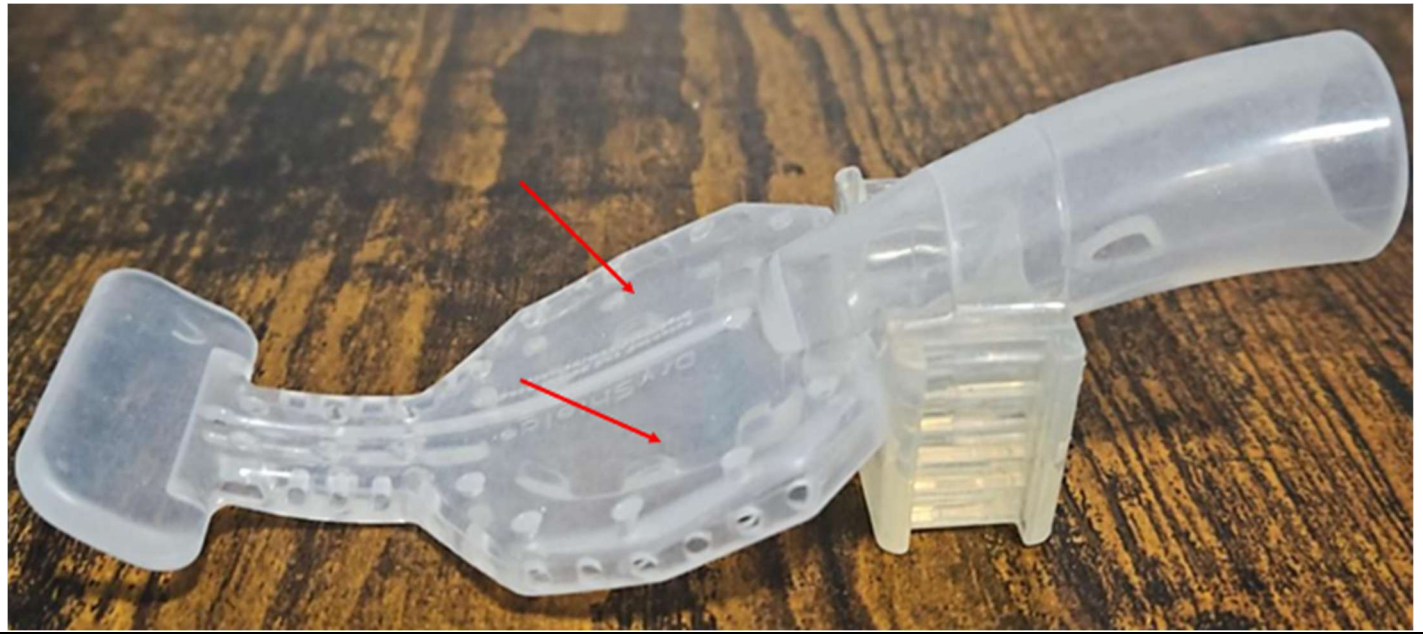
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG.23A  FIG.23C Black explains that an open-sided tongue shield aspirator, which is a dental isolation mouthpiece, facilitates enhanced fluid and debris aspiration as well as easier bending for fitting into the patient’s mouth. Black, 17:47-54. 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. *Id*. 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). *KSR Int'l Co. v. Teleflex Inc*., 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). *Id*. 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 Ngyuen 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.

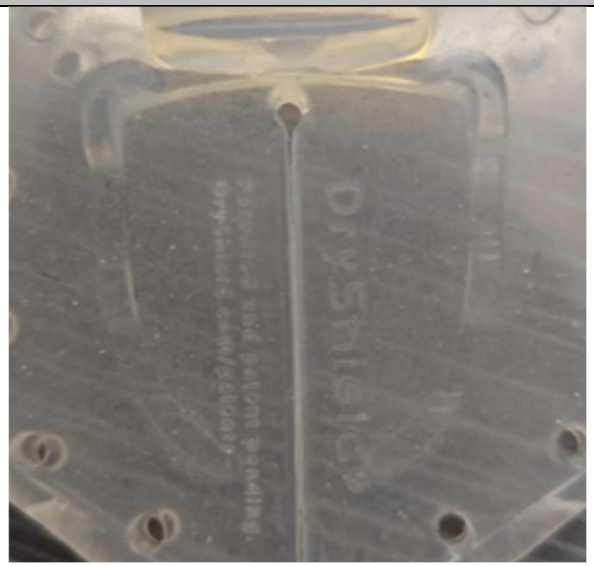
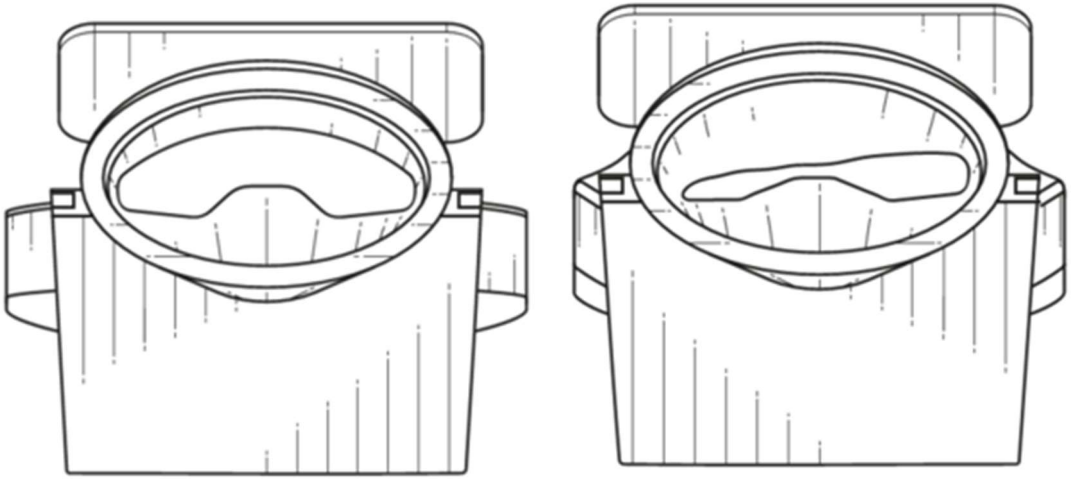
The ’948 Patent	Exemplary Disclosures in the Prior Art
	A PHOSITA would understand that when two parallel walls are connected at their edges and spaced apart, any bending force from mouth tissue would force the two walls to bend along different paths. The “outer” (posterior) wall would bend at a different 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. *Id.* 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. *Id.* This is the basic geometric constraint of bending layered materials. *Id.* 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. *Id.* In addition to Black, Mr. Thirsty and AirBug teach the same open walls: 

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 Hirsch, Hirsch 2, and the Isolite Mouthpiece likewise teach the same open walls.  FIG. 19C

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 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

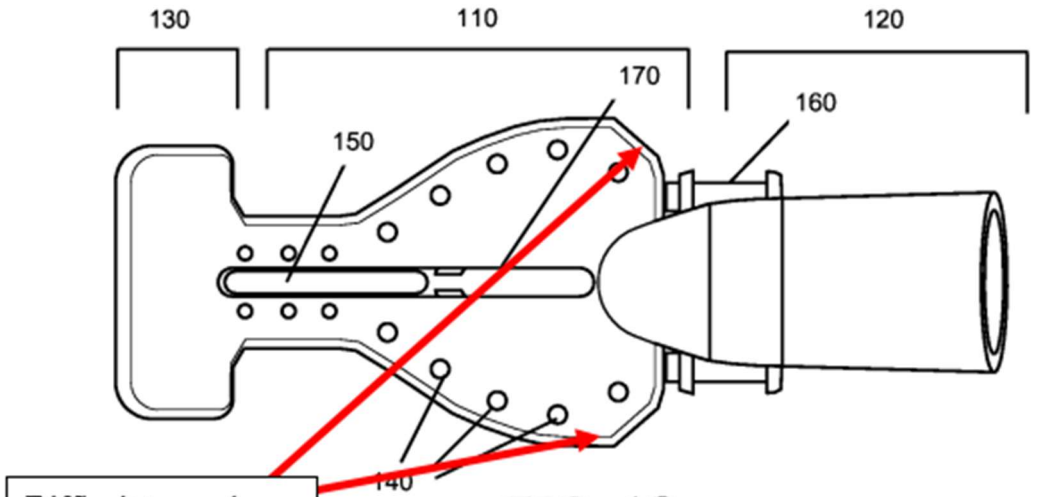
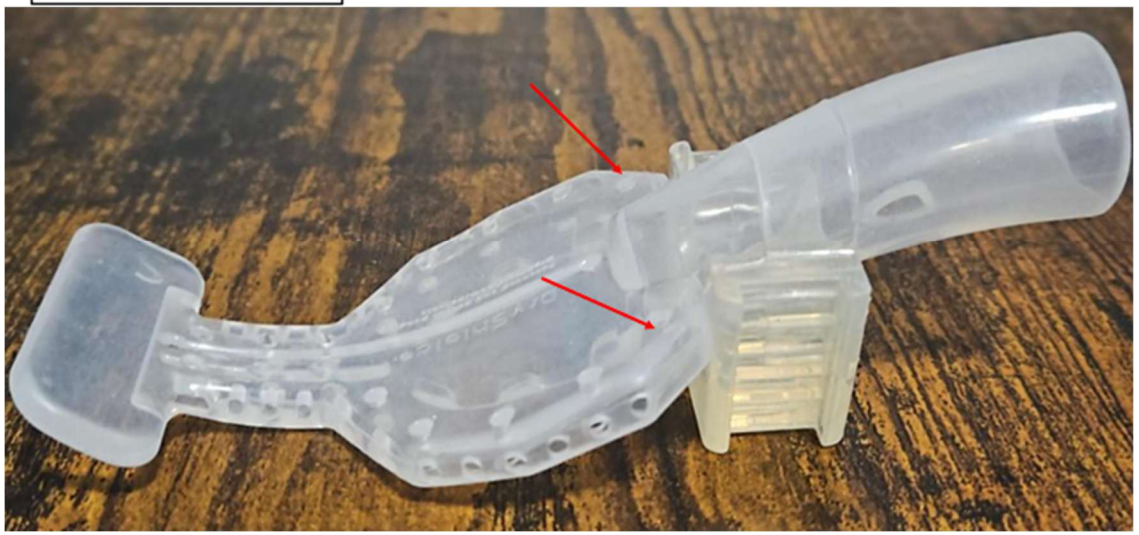
The ’948 Patent	Exemplary Disclosures in the Prior Art
	the mouthpiece – an important suction location, as this is where the dental operation occurs. Nguyen, 2:10-16, 4:38-56.  FIG. 1A  FIG. 5 In addition, a PHOSITA would recognize that the bending force would further cause bending at the anterior wall 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.

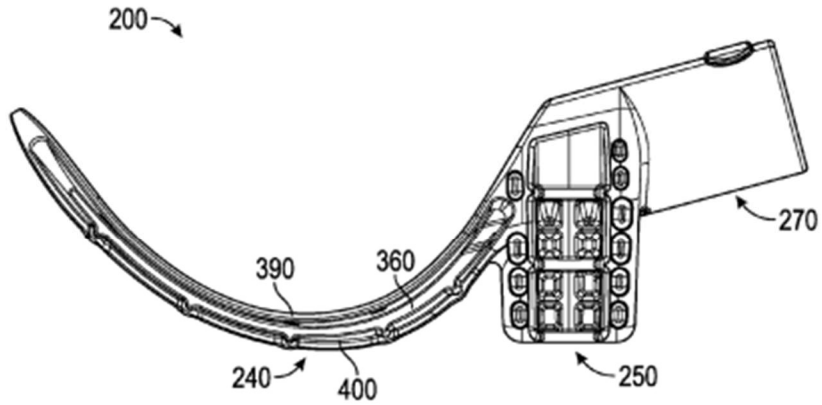
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1A FIG. 5 DM1 teaches the same: 

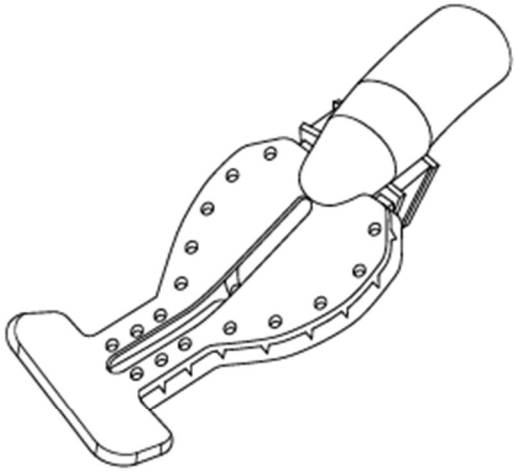
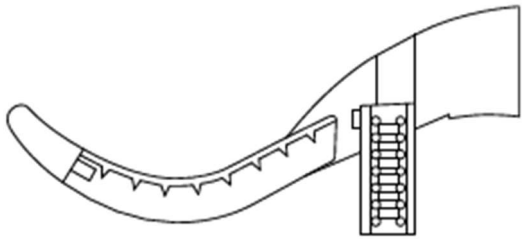
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 As shown above, the anterior wall would bend into a trough in the bridge structure 180 near the suction connector, thereby partially blocking one or both of the suction inlet locations at the suction connector. 

Solmetex Ex. 2014
Ascentcare Dental Products v. Solmetex - PGR2025-00058

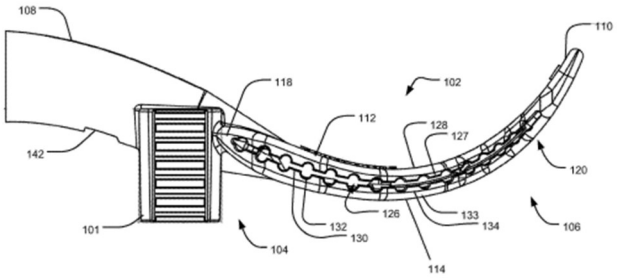
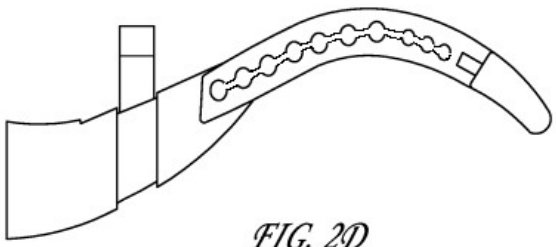
The ’948 Patent	Exemplary Disclosures in the Prior Art
	With that understanding, a PHOSITA would further understand that an unconnected edge would allow the anterior and posterior walls to bend at different radiuses. This is because the anterior wall would not receive the posterior wall’s folding force through the sidewalls (i.e., the torque) as well as any folding force it also received from mouth tissue. *Id*. 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”). *Id*. 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. *Id.* 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 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. *Id*.

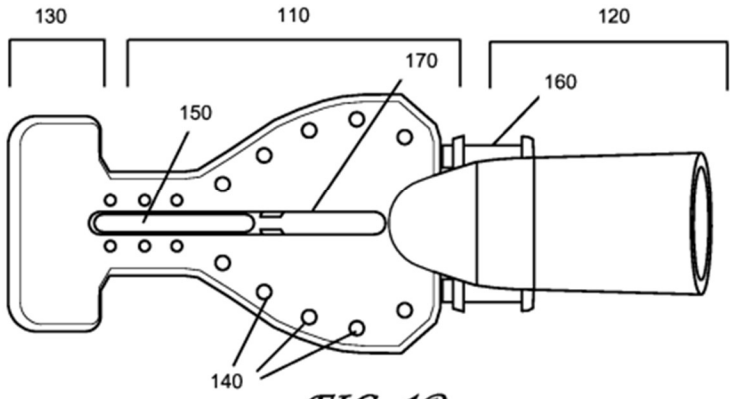
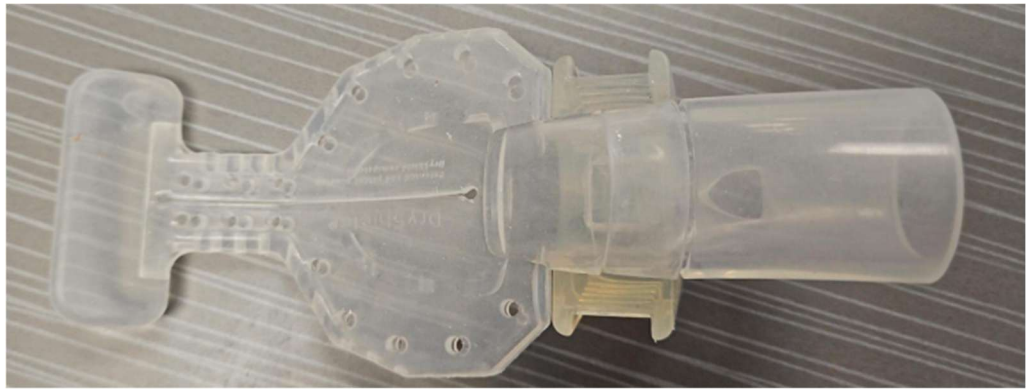
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1B  A PHOSITA would have known that a dental mouthpiece with open sides, such as Black, AirBug, Mr. Thirsty, Hirsch, Hirsch 2, Isolite Mouthpiece would have been far easier to clean because a brush would remove gunk and bacteria unimpeded 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

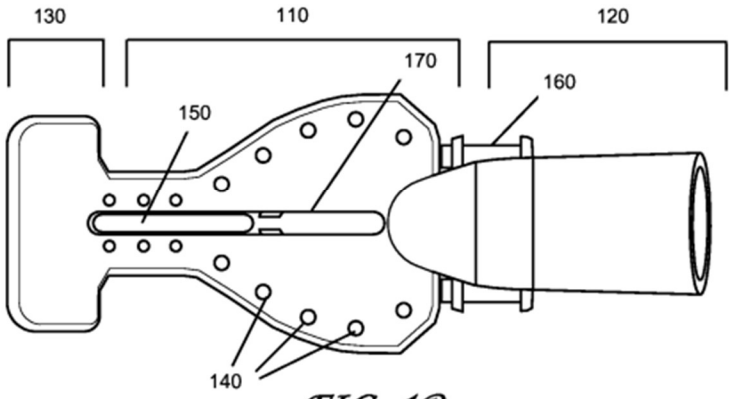
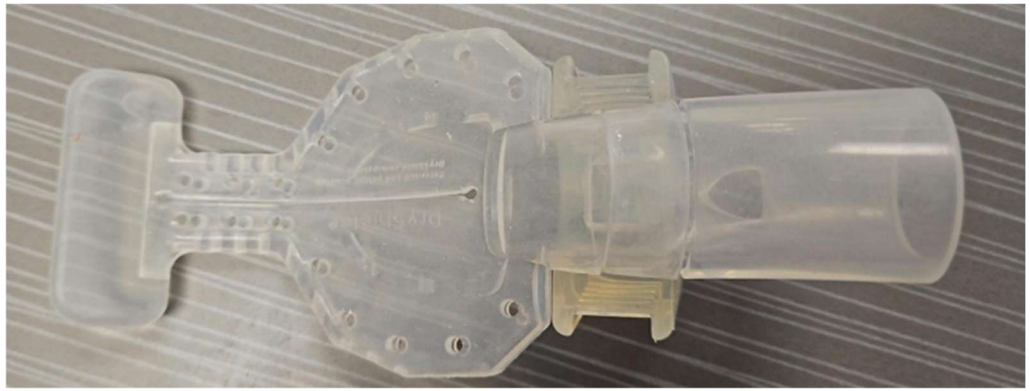
The ’948 Patent	Exemplary Disclosures in the Prior Art
	openings, as opposed to folding back the anterior wall of Nguyen at the slit 170, inserting a brush through the slit 170, and attempting to reach the brush into all small corners formed on the mouthpiece of Nguyen. Nguyen, 4:34-37, FIG. 1B. An open-sided 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, Hirch 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. *Id*.  **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). See annotated Nguyen, FIG. 1A and 1D.

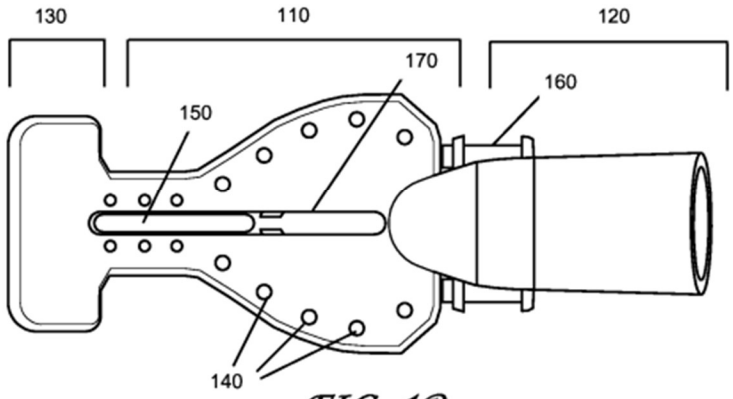
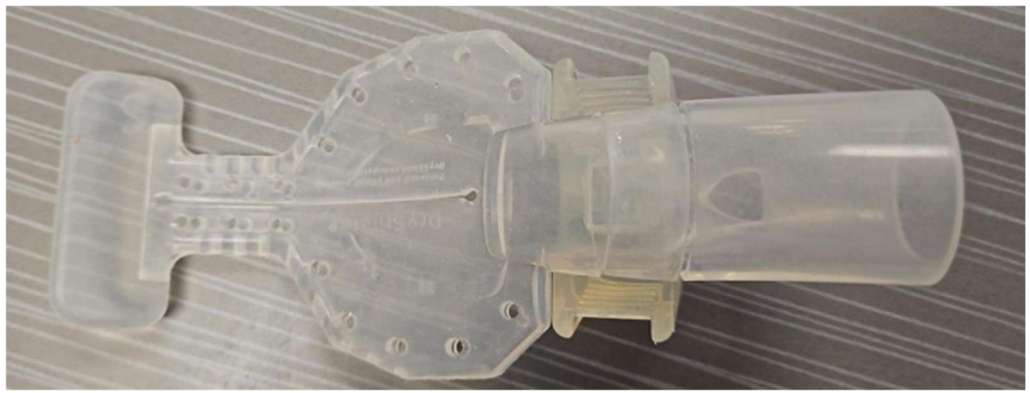
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1A  FIG. 1D A PHOSITA would have expected success in modifying Nguyen or DM1 in view of Hirsch 2 as proposed above because Hirsch 2 explains that a wall having V-shaped grooves assists in suction. Hirsch 2, 3:51-55, 4:4-16. Nguyen in view 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

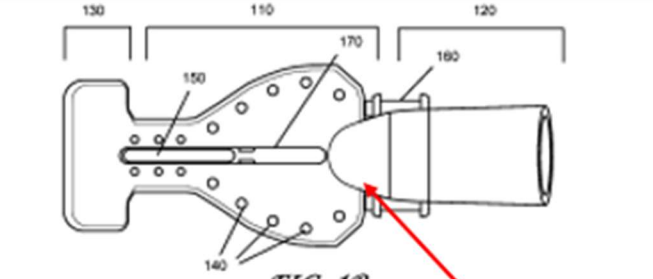
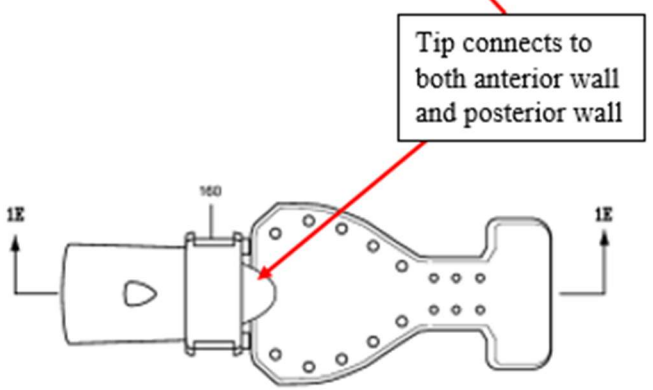
The ’948 Patent	Exemplary Disclosures in the Prior Art
	to maintain anti-collapse structure at the edges of the mouthpiece to avoid the undesirable seal taught by Hirsch. Hirsch, 4:43-67. However, a PHOSITA would know that there must be some inlet for suction to occur, lest the sidewall completely block 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.
23[d] the two edges of the first wall being unconnected to the second wall, the plurality of ridges forming an open-meshed configuration between the first and second walls to allow for suction of fluids from a patient's mouth into the interior space between the first and second walls; and	Notwithstanding the confusing and unsupported claim language, once Nguyen or DM1 are modified by one or two of Black, AirBug, Mr. Thirsty Mouthpiece, Hirsch, Hirsch 2, or Isolite Mouthpiece (discussed above), the plurality of ridges of the ridged configuration would “not connect to the second wall” in the same way shown in the ’948 Patent. Moreover, to the extent that “open meshed configuration” can be understood, Nguyen or DM1 as modified by one or two of Black, AirBug, Mr. Thirsty Mouthpiece, Hirsch, Hirsch 2, or Isolite Mouthpiece, results in nearly identical sides as shown in FIG. 6 of the ’948 Patent, which the ’948 Patent describes as an “open-meshed configuration”.

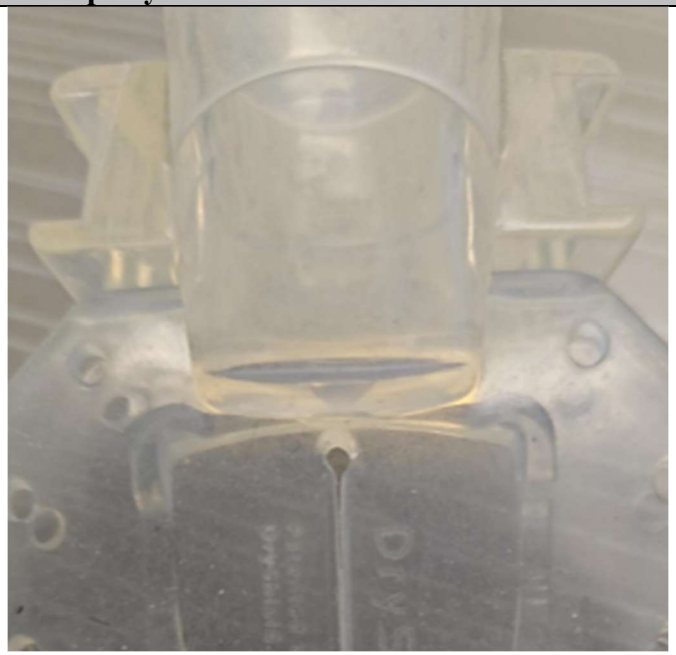
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 6  FIG. 2D Nguyen, Fig. 2D (modified to include connecting slit).
23[e] a suction connector portion extending from a first end of the main body portion, wherein the suction connector portion includes an evacuation conduit opening into the interior space of the main body portion; and	Nguyen teaches 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 ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1B DM1 teaches the same: 
23[f] a neck that extends from the second end of the main body portion.	Nguyen teaches a rectangular portion, acting as a neck, extending from the main body portion 110 and connected to the cheek retractor portion 130. Nguyen, 4:4-11. As shown in FIG. 1B, for example, the rectangular portion is narrower than the cheek retractor 130.

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 *FIG. 1B* DM1 teaches the same: 
24 The mouthpiece of claim 23, wherein the main body portion further includes a	As shown in FIG. 1B, Nguyen illustrates that the perforations 140 are formed on narrow, rectangular portion. Nguyen, FIG. 1B-1C.

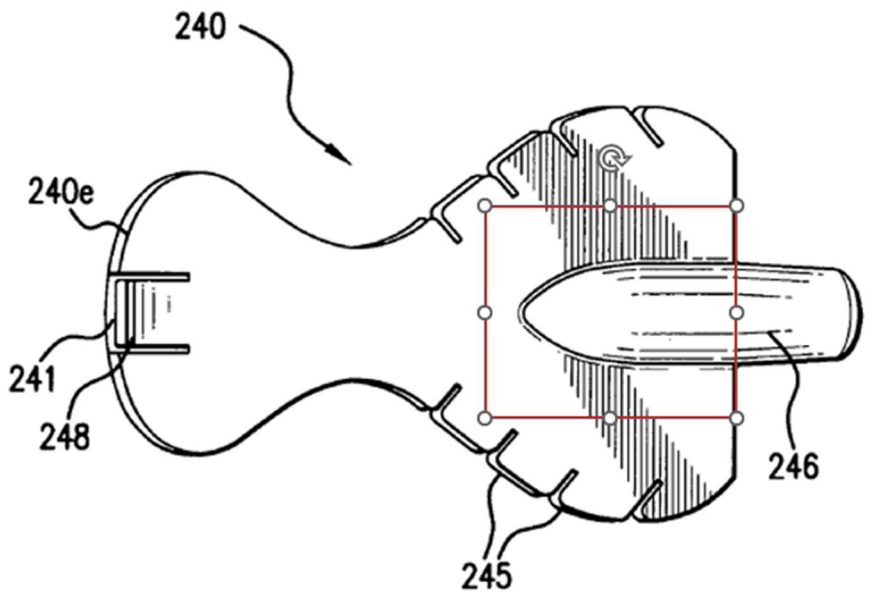
The ’948 Patent	Exemplary Disclosures in the Prior Art
plurality of perforations that open into the interior space, the plurality of perforations being located in the first wall and in the neck.	 *FIG. 1B* DM1 teaches the same: 
25 The mouthpiece of claim 23, further comprising a connector wall that connects the first wall to the second wall, the connector wall extending within the interior	Under Solmetex’s own construction of a connector wall as asserted in its infringement contentions, Nguyen discloses a tip in front of the suction connector that includes a wall within the interior space that exists along or substantially near a longitudinal axis of the mouthpiece. Nguyen, FIG. 1E.

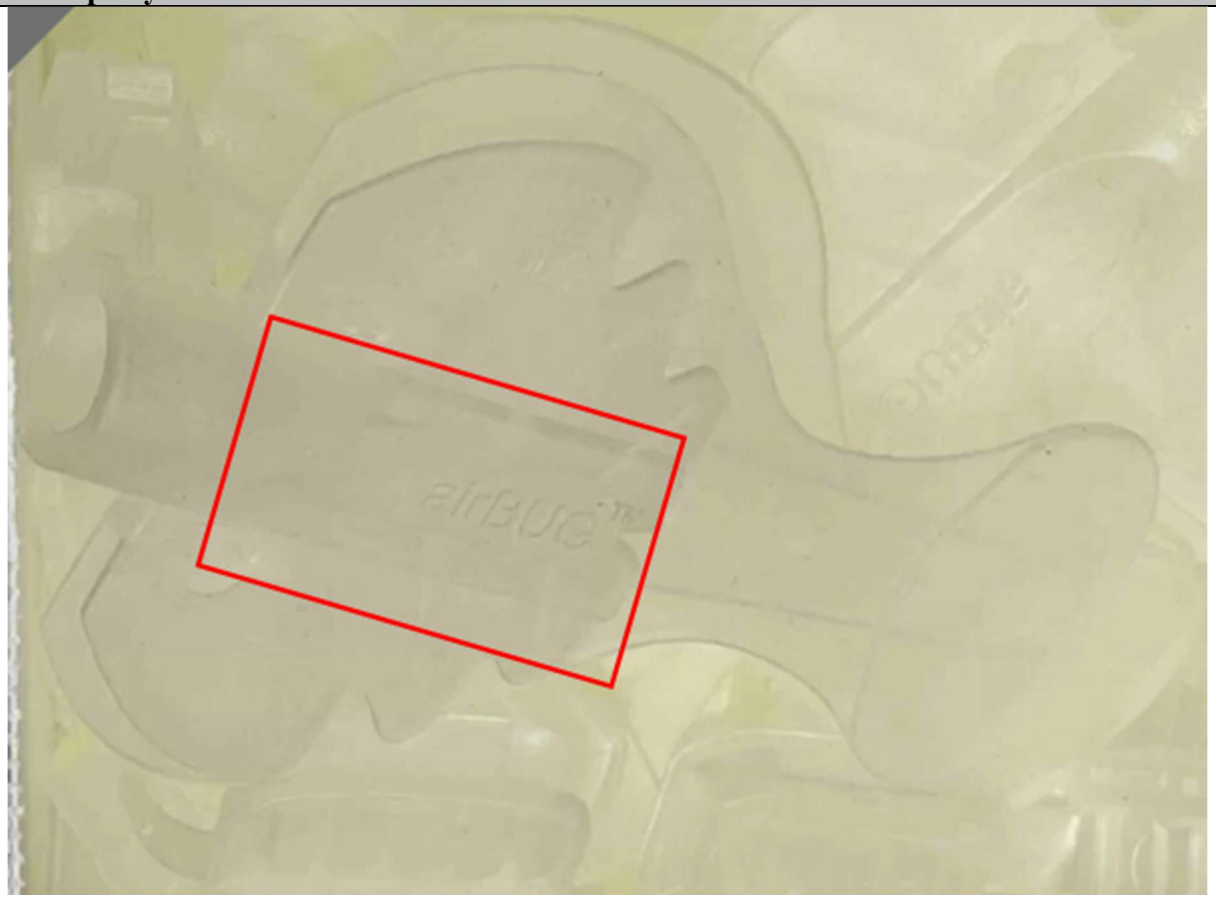
The ’948 Patent	Exemplary Disclosures in the Prior Art
space along a longitudinal axis of the main body portion.	 FIG. 1B  FIG. 1C Alternatively, Nguyen discloses a stability bar that includes a wall within the interior space along a longitudinal axis of the main body portion. Nguyen, 4:6-30. The stability bar, which Nguyen also calls a reinforcing bar, assists in providing cheek retraction force to retract a patient’s cheek away from the dental procedure area. Nguyen, 3:29-35, 4:28-30. DM1 discloses the same suction connector and stability bar:

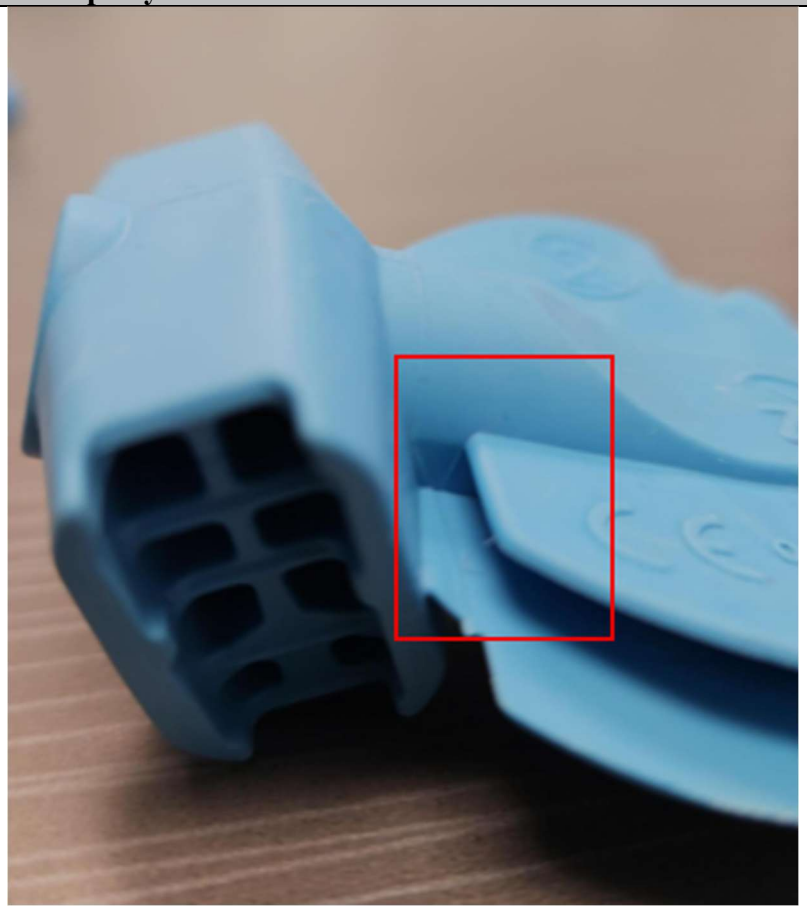
The ’948 Patent	Exemplary Disclosures in the Prior Art
	

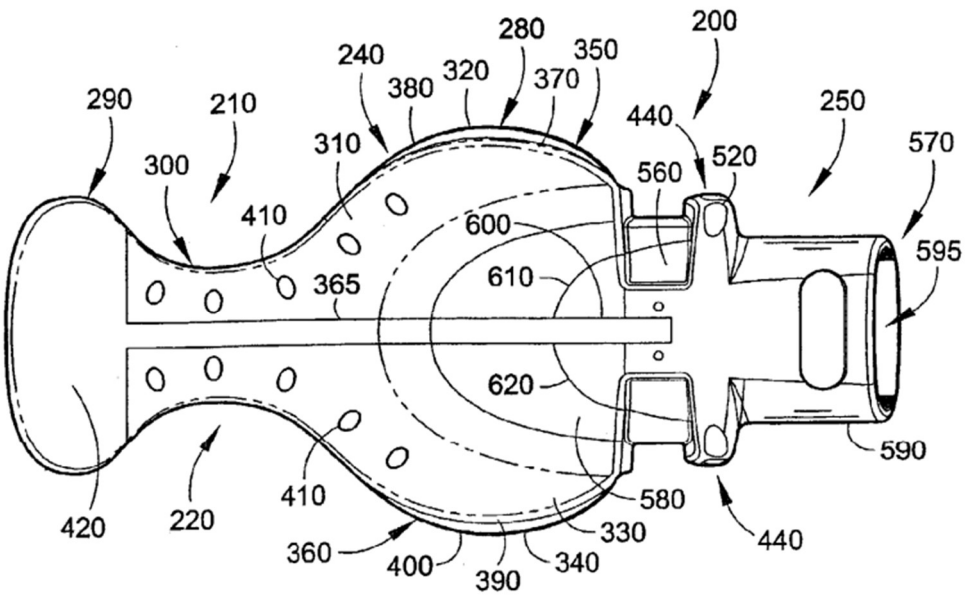
Solmetex Ex. 2014
Ascentcare Dental Products v. Solmetex - PGR2025-00058

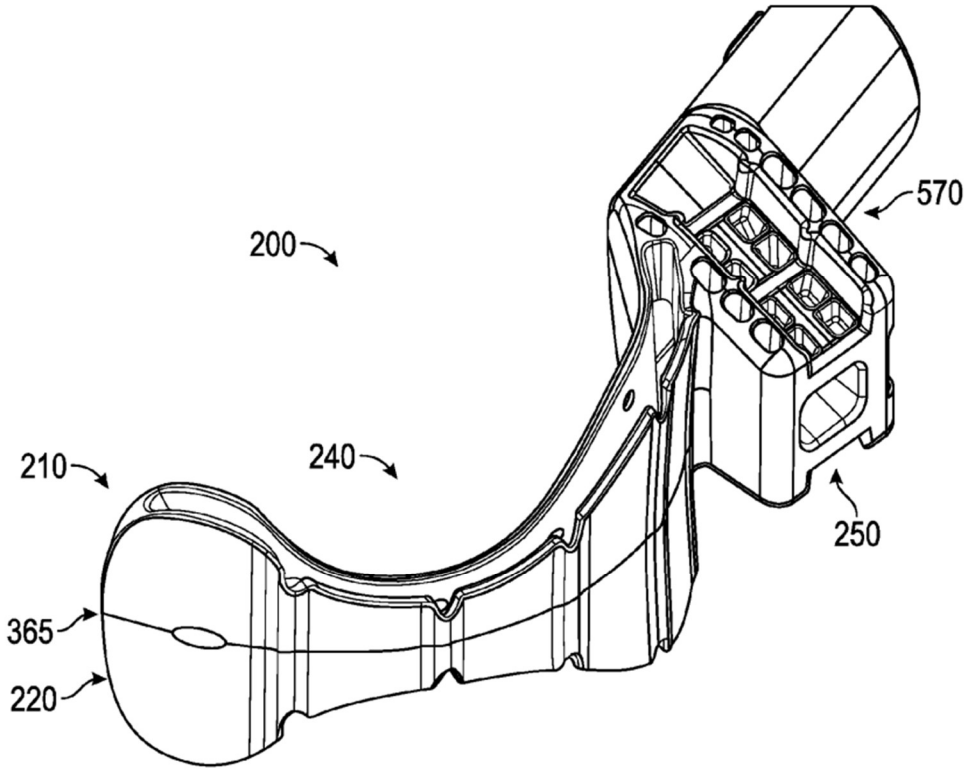
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 While the stability bar is described as a thickened area (Nguyen, 4:12-15, FIG. 6B), a PHOSITA would have known that a thicker stability bar would provide enhanced cheek retraction forces. A PHOSITA would further know that the thickest and strongest cheek retraction force would come from a stability bar that connects the anterior wall to the posterior wall. Black, AirBug, and Mr. Thirsty each disclose the same suction connector that extends longitudinally into the interior space of the mouthpiece:

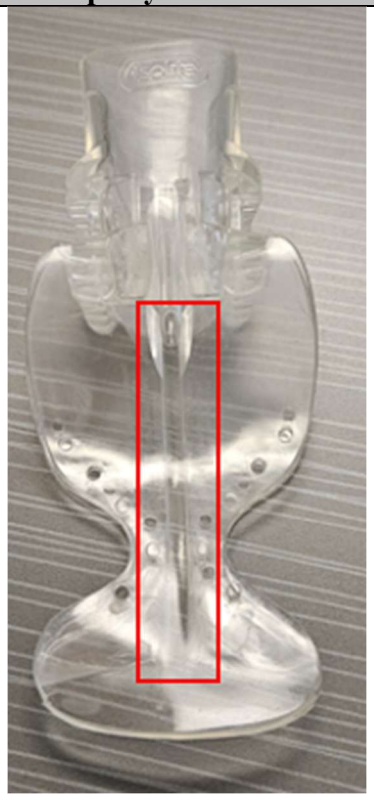
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG.4A

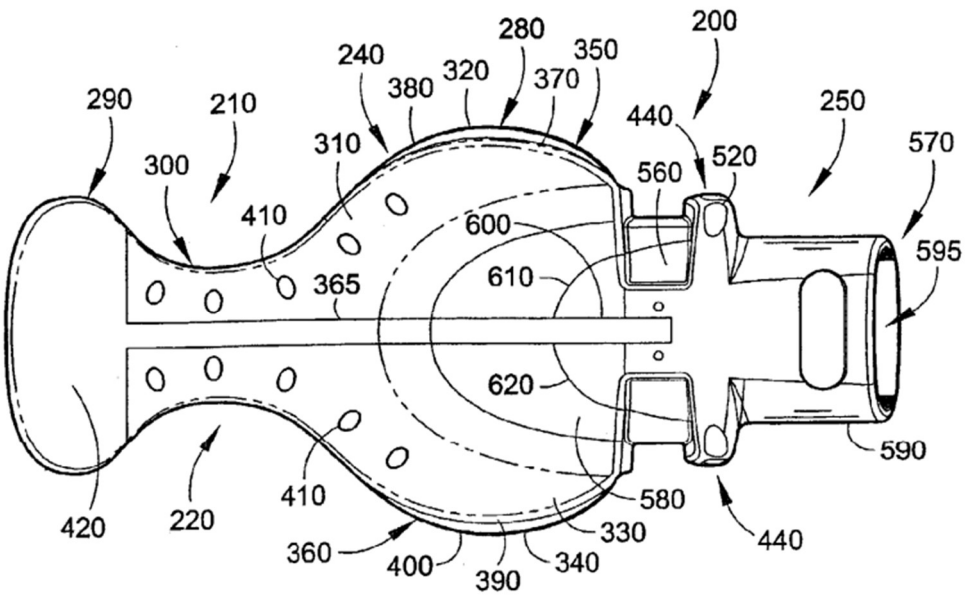
The ’948 Patent	Exemplary Disclosures in the Prior Art
	

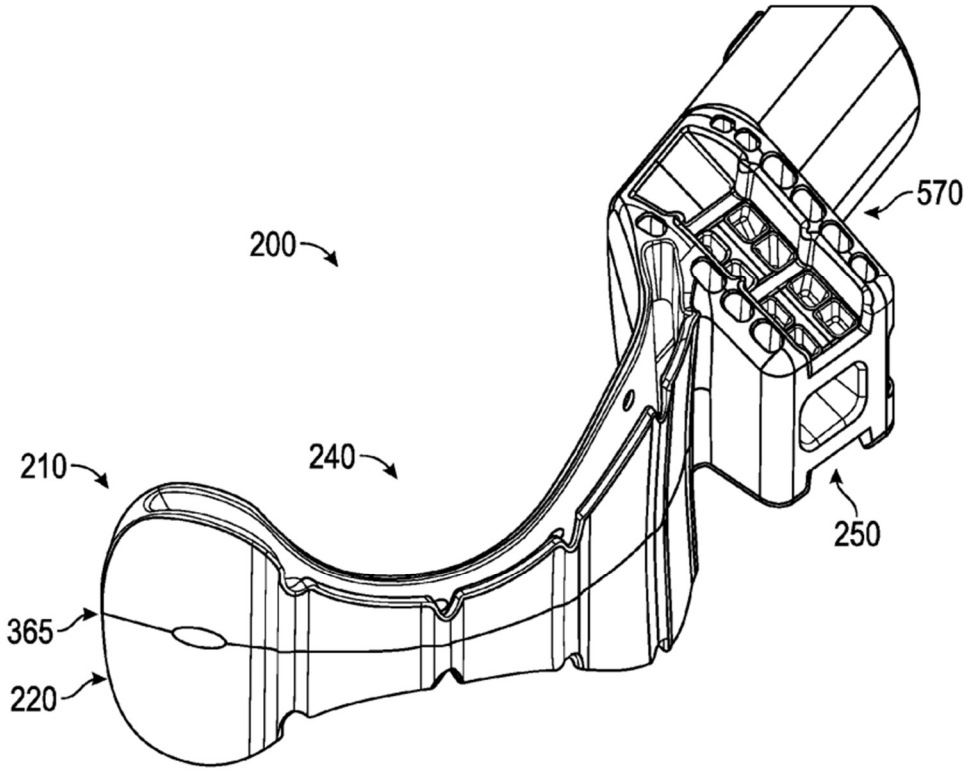
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 Hirsch, Hirsch 2, and the Isolite Mouthpiece teaches such a spine that connects anterior flaps to posterior flaps and provides added rigidity, which a PHOSITA would know provided added cheek retraction force. Hirsch, 4:22-27, 2:62-64, FIG. 14.

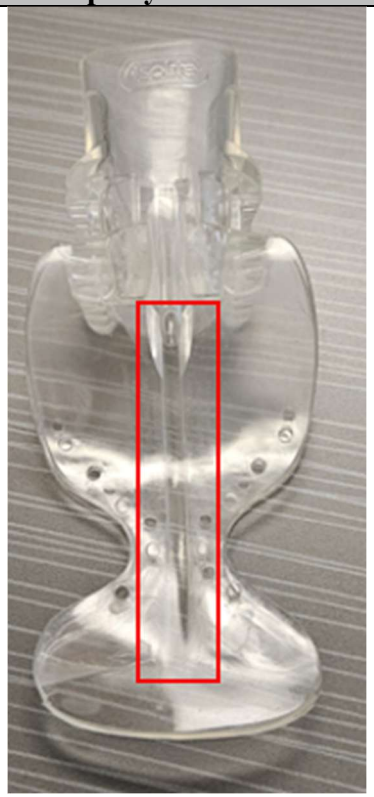
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19A Hirsch, Fig. 19A (365, “common central spine”). Hirsch 2 (365, “common central spine”) teaches the same:

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 11 And Isolite Mouthpiece teaches the same:

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 Thus, it would have been obvious to a PHOSITA to replace or extend the stability bar 150 in Nguyen or DM1 with a spine 365 at least in the rectangular portion to provide enhanced cheek retraction. Nguyen, 3:29-35. A PHOSITA would have expected success in thickening walls to help with cheek retraction because mouthpieces with spines were known and mouthpieces with thickened areas on the area between a tongue retractor and a cheek retractor were also known. Hirsch, 4:22-27, FIG. 14. The extended stability bar may close at least a portion of the slit, but as discussed above, the slit is optional after opening the sides.
26 The mouthpiece of claim 25, wherein the connector wall extends through the neck at the second end of the main body portion.	As discussed in claim 25, Hirsch, Hirsch 2, and Isolite Mouthpiece teaches that the spine extends through the neck, and the stability bar extends through the rectangular portion of Nguyen. After replacing the stability bar with a spine, the connector would extend through the rectangular area (neck) of Nguyen or DM1.

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19A Hirsch, Fig. 19A (365, “common central spine”). Hirsch 2 (365, “common central spine”) teaches the same:

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 11 And Isolite Mouthpiece teaches the same:

The ’948 Patent	Exemplary Disclosures in the Prior Art
	
27 The mouthpiece of claim 26, wherein the main body portion is formed of a flexible material that allows for the two edges of the first wall to be pulled away from the second wall.	Nguyen and DM1 teach a mouthpiece formed of a flexible, translucent, high-heat resistant, autoclavable, silicone-based material. Nguyen, Abstract. A PHOSITA would understand that such flexibility would allow the anterior wall to be pulled away from the posterior wall once the sidewalls were opened in view of Black, AirBug, Mr. Thirsty Mouthpiece, Hirsch, Hirsch 2, or Isolite Mouthpiece. Regardless, this portion of the limitation is nothing more than an intended use. MPEP 2114(II). DM1 teaches a silicone mouthpiece:

The ’948 Patent	Exemplary Disclosures in the Prior Art
	
28 The mouthpiece of claim 23, wherein the main body portion is formed of a flexible material that allows for the first wall to be pulled away from the second wall.	Nguyen and DM1 teach a mouthpiece formed of a flexible, translucent, high-heat resistant, autoclavable, silicone-based material. Nguyen, Abstract. A PHOSITA would understand that such flexibility would allow the anterior wall to be pulled away from the posterior wall once the sidewalls were opened in view of Black. Regardless, this portion of the limitation is nothing more than an intended use. MPEP 2114(II). DM1 teaches a silicone mouthpiece: 

The ’948 Patent	Exemplary Disclosures in the Prior Art
29 The mouthpiece of claim 28, further comprising a connector wall that connects the first wall to the second wall, the connector wall extending within the interior space along a longitudinal axis of the main body portion	*See* Limitation 25.
30. The mouthpiece of claim 29, wherein the connector wall extends along the longitudinal axis along a portion of the main body portion.	*See* Limitations 25 and 26.
31 The mouthpiece of claim 30, wherein the main body portion further includes a plurality of perforations that open into the interior space, the plurality of perforations being located in the first wall and in the neck.	*See* Limitation 24.

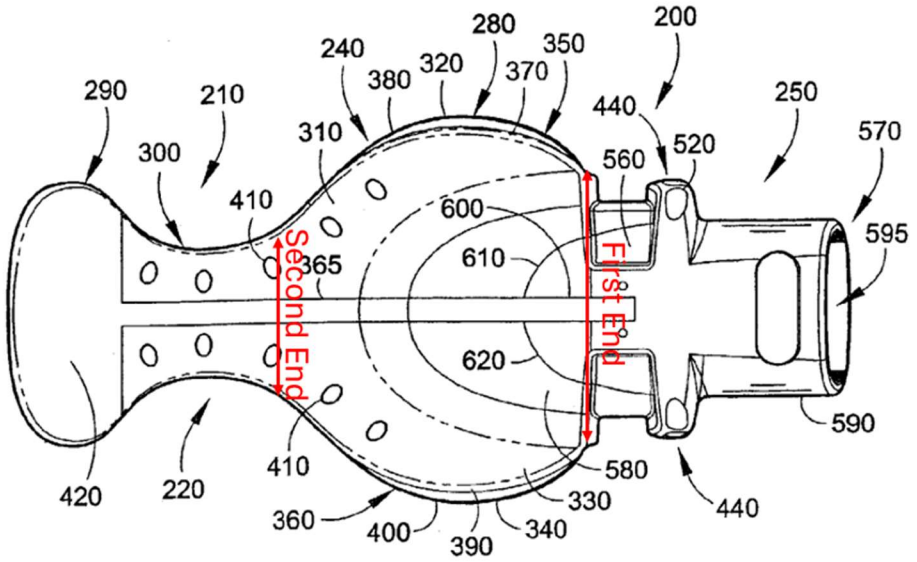
EXHIBIT F-2 (Hirsch or Isolite Mouthpiece in View of One or Two of the Skill of a PHOSITA, Nguyen, and DM1)
Initial Invalidity Chart for U.S. Patent No. 12,167,948

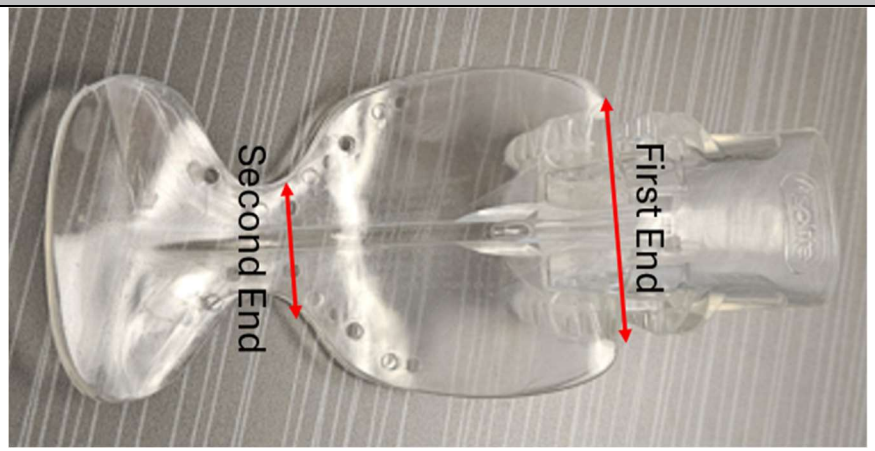
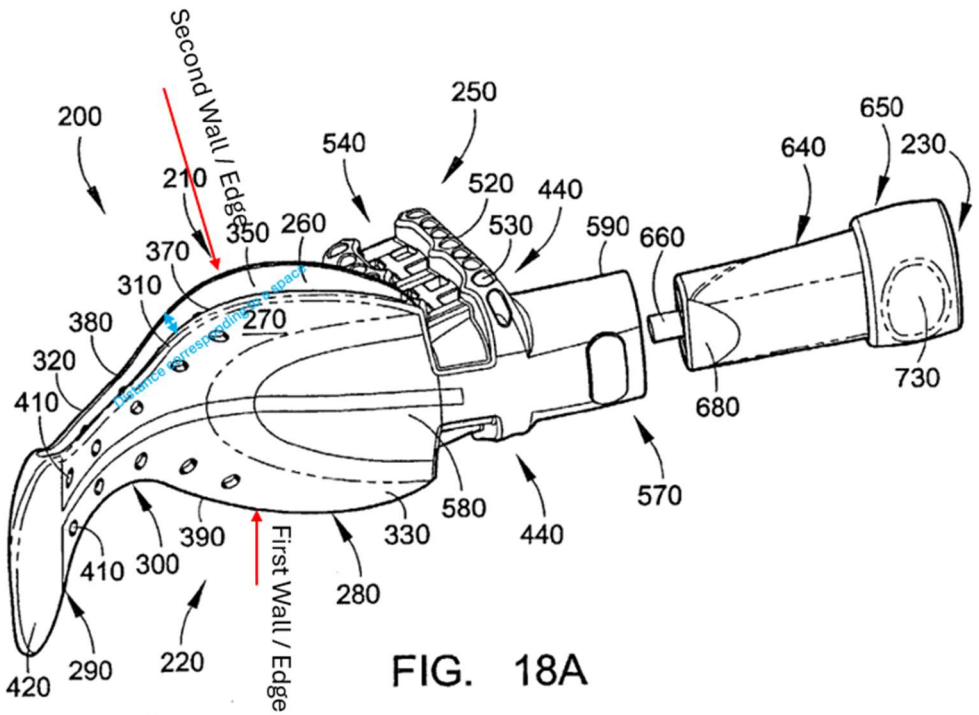
Ascentcare incorporates by reference the cover pleading to its Initial Invalidity Contentions. These Initial Invalidity Contentions, including these claim charts, are not an admission regarding claim scope or the accused products, and, in particular, that the accused products, including any current or 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.

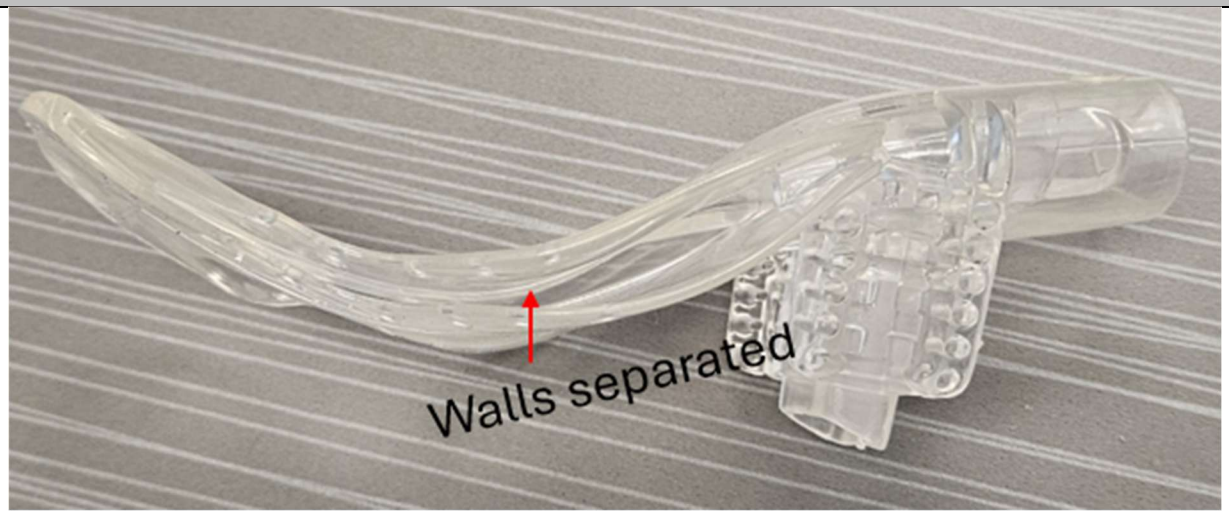
Pursuant to AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, Nguyen and Hirsch were patented or described in a printed publication more than one year prior to the priority date of the '948 Patent, and therefore renders obvious, either alone or in combination with the other 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. 12,167,948.

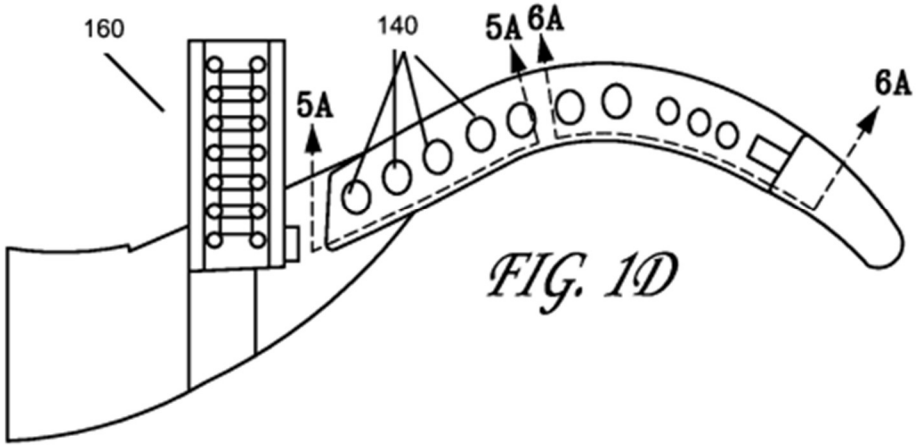
Pursuant to AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below the Isolite Mouthpiece and DM1[2] were on sale or in public use more than one year prior to the priority date of the '948 Patent, and therefore renders obvious, either alone or in combination with the other prior art, 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. 12,167,948.

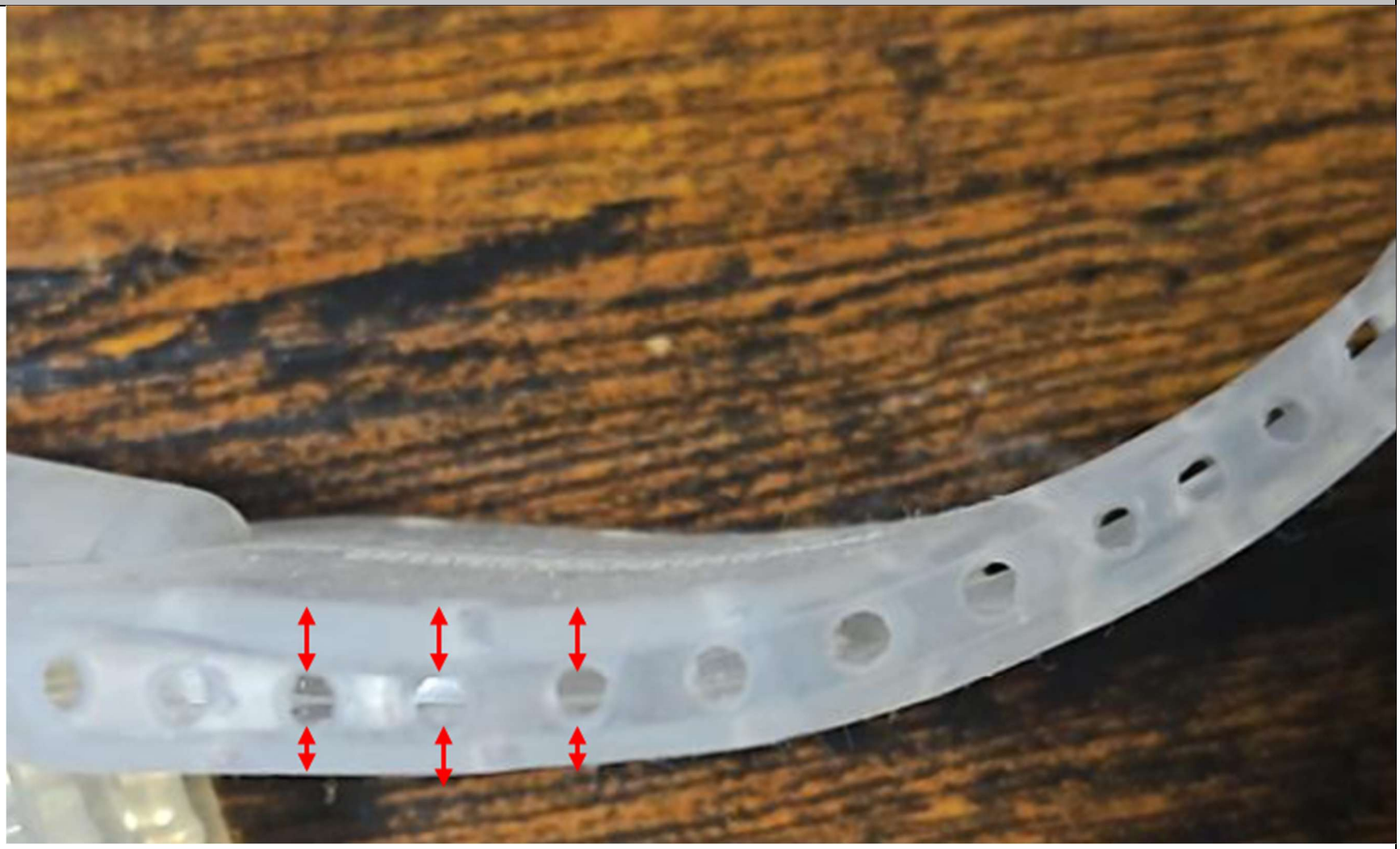
[2] It is Ascentcare's understanding that several of the embodying products discussed herein may have multiple embodiments over the years. Discovery is ongoing, and Ascentcare has issued subpoenas seeking the prior art embodiments. To the extent that Ascentcare currently relies on more current embodiments 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.

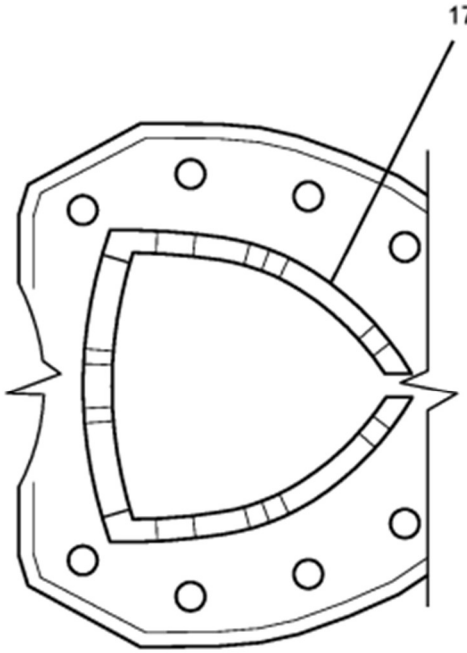
The '948 Patent	Exemplary Disclosures in the Prior Art
20[a] A dental mouthpiece comprising:	To the extent the preamble is limiting, each of the references discussed herein is a dental mouthpiece.
20[b] a main body portion comprising: a first wall that includes two edges, a second wall set at a distance from the first wall, wherein the first wall and the second wall define an interior space that correspond s to the distance between the first wall and the second wall;	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

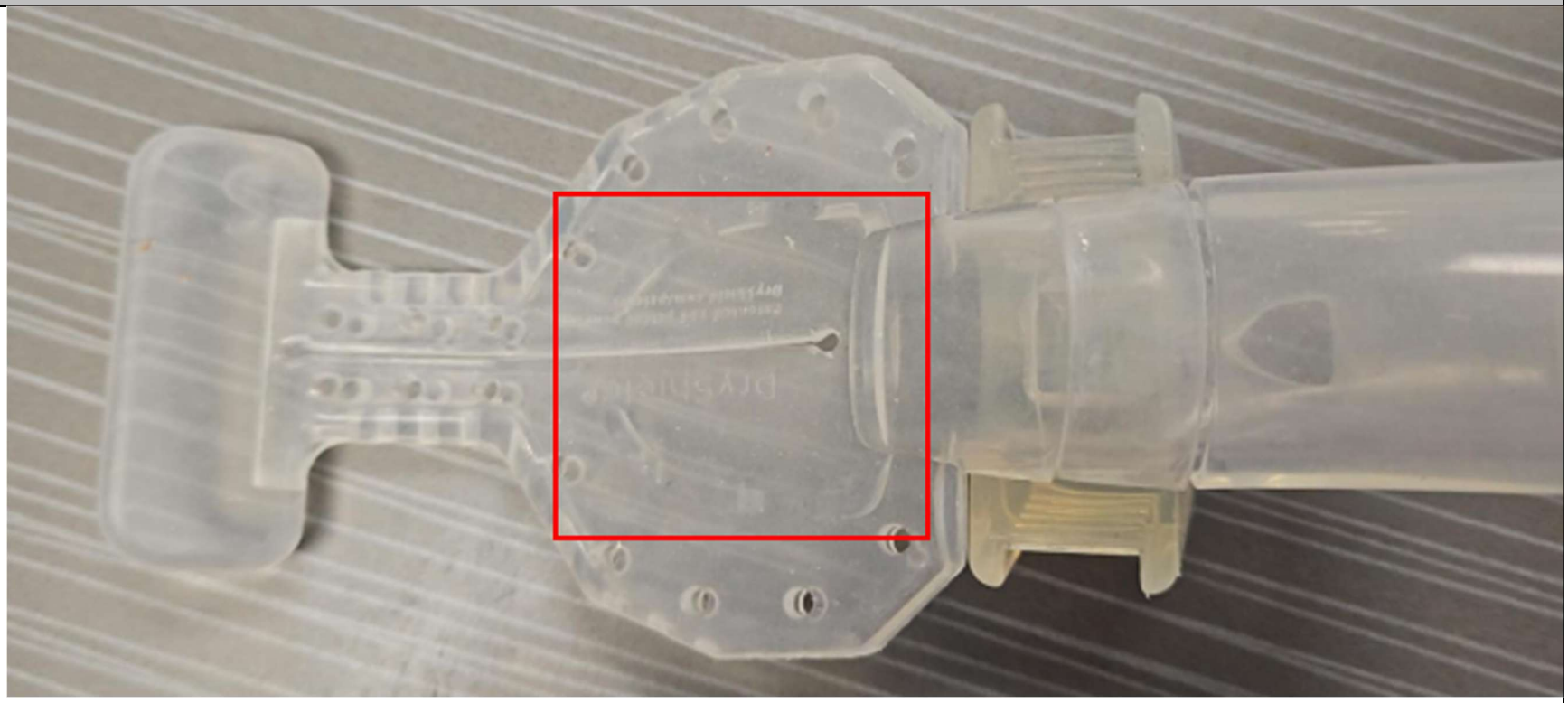
The ’948 Patent	Exemplary Disclosures in the Prior Art
	  FIG. 18A

The '948 Patent	Exemplary Disclosures in the Prior Art
	
20[c] wherein the first wall is configured at the two edges to have a ridged configuration with a plurality of ridges extending different distances partially across the distance between the first	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 (*see* 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. *See* Nguyen Fig. 1D, 2:10-15; 3:40-54.

The ’948 Patent	Exemplary Disclosures in the Prior Art
wall and the second wall,	 FIG. 1D

The ’948 Patent	Exemplary Disclosures in the Prior Art
	

The ’948 Patent	Exemplary Disclosures in the Prior Art
	 *FIG. 5*

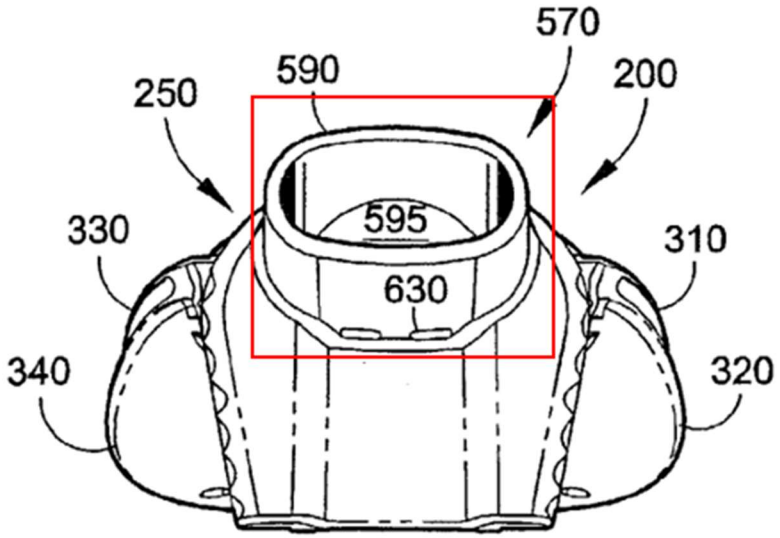
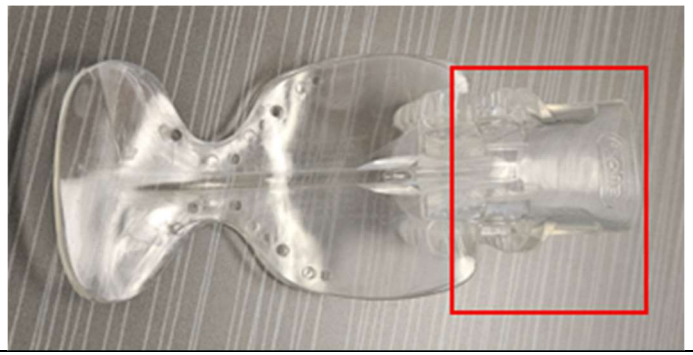
The ’948 Patent	Exemplary Disclosures in the Prior Art
	

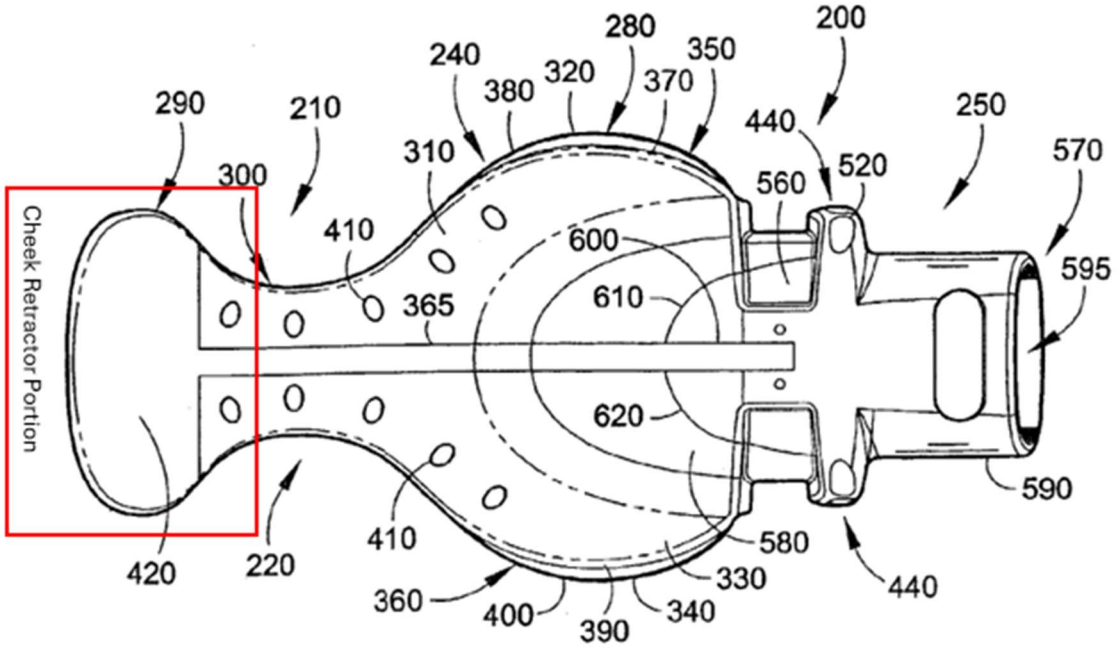
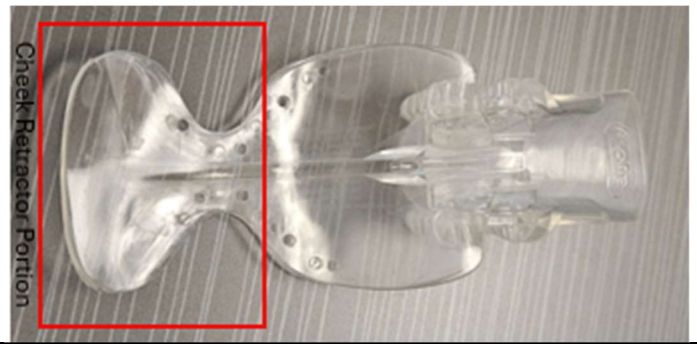
To the extent Nguyen fails to teach any limitation 17(d), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of the above references with those taught below. The resulting combination would satisfy the requirements of the claimed invention.

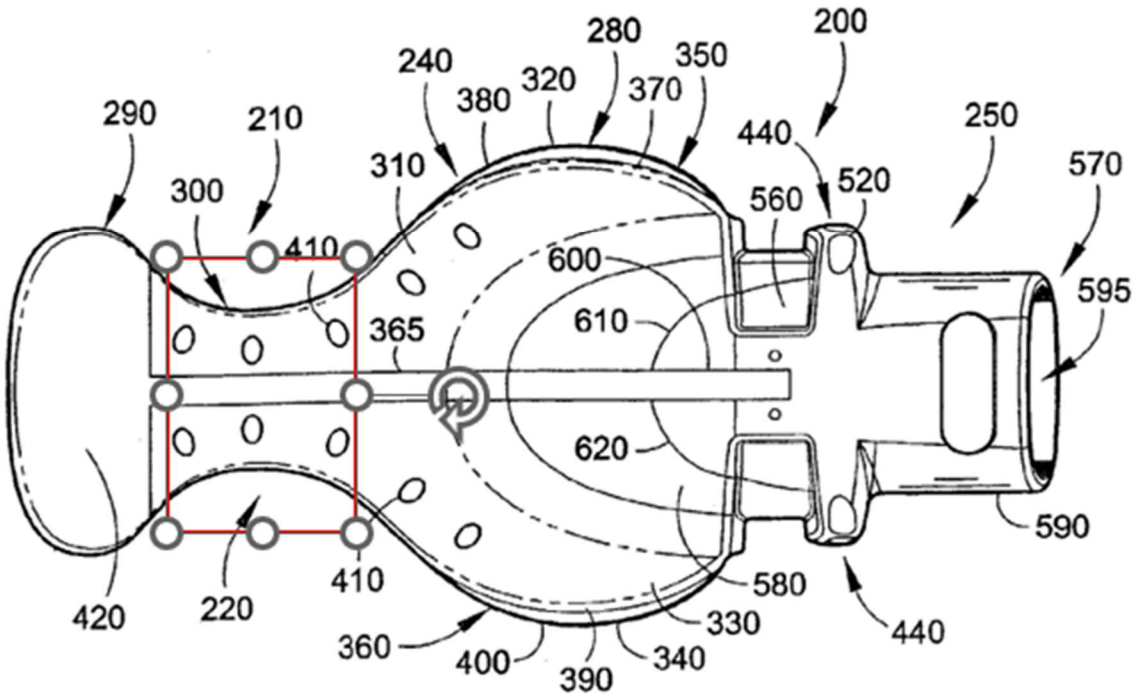
To the extent Hirsch fails to teach limitation 17(d), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of the above references with those taught below. The resulting combination would satisfy the requirements of the claimed invention.

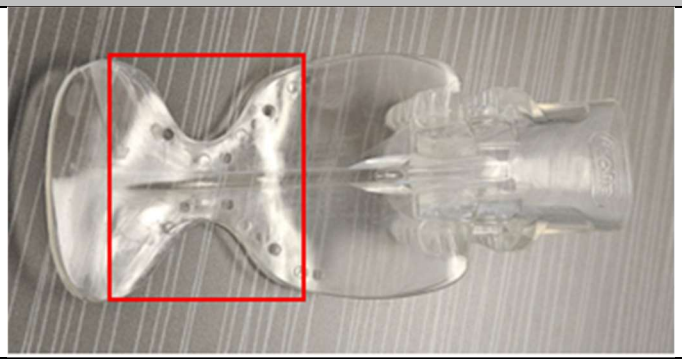
As a non-limiting example, Hirsch may be combined with Nguyen. The mouthpiece of Hirsch includes four flaps that tend to collapse under suction. Nguyen teaches a bridge structure 180 that prevents collapse under suction but still allows for passage of fluid. In combination, Hirsch would include a bridge structure that includes an intervening wall with alternating crests and troughs.

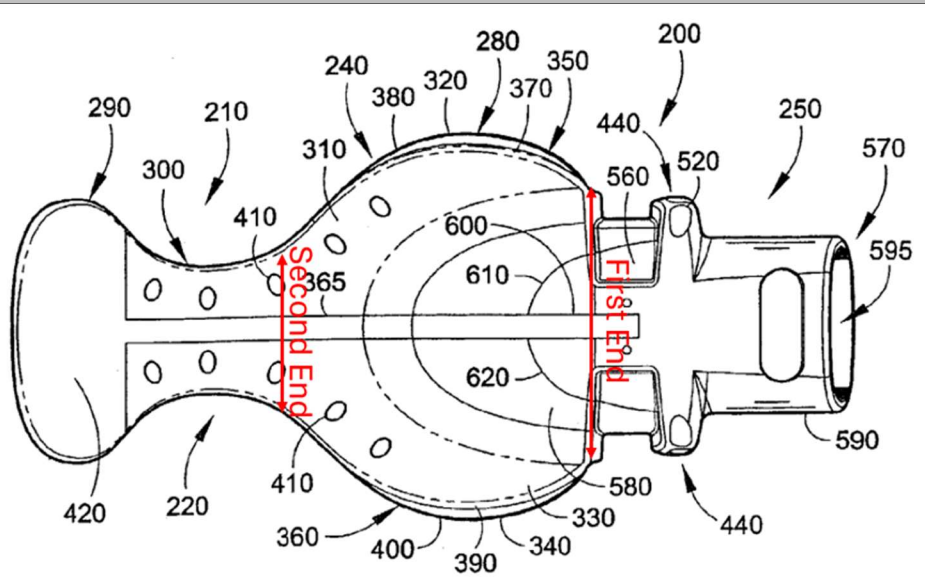
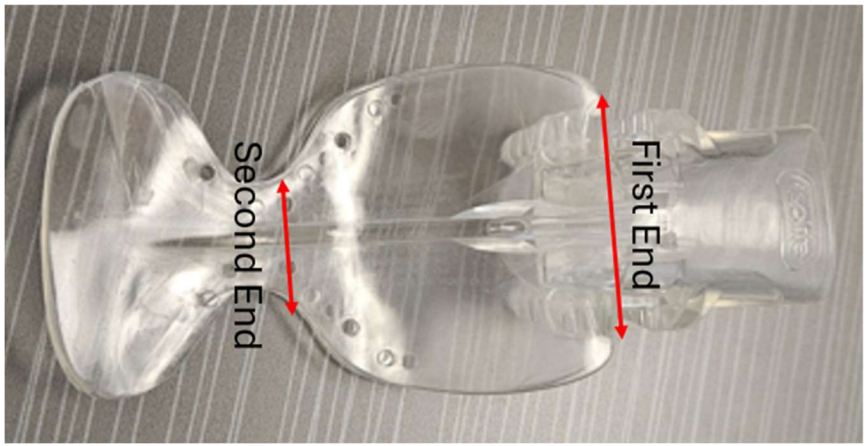
The '948 Patent	Exemplary Disclosures in the Prior Art
20[d] the two edges of the first wall being unconnected to the second wall, the plurality of ridges forming an open-meshed configuration between the first and second walls to allow for suction of fluids from a patient's mouth into the interior space between the first and second walls; and	*See* Limitation 20[c]
20[e] a suction connector portion extending from a first	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"

The '948 Patent	Exemplary Disclosures in the Prior Art
end of the main body portion, wherein the suction connector portion includes an evacuation conduit opening into the interior space of the main body portion; and	 FIG. 19D 
20[f] a cheek retractor	Hirsch and Isolite both disclose a "cheek retractor portion connected to the second end of the main body portion:"

The '948 Patent	Exemplary Disclosures in the Prior Art
portion connected to a second end of the main body portion.	 FIG. 19A 
21 The mouthpiece	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 '948 Patent	Exemplary Disclosures in the Prior Art
of claim 20, wherein the cheek retractor portion is connected to a neck of the main body portion, wherein the neck extends from the second end of the main body portion.	 FIG. 19A

The '948 Patent	Exemplary Disclosures in the Prior Art
	
22 The mouthpiece of claim 21, wherein a width of the cheek retractor portion is greater than a width of the neck.	*See* Claim 21.
23[a] A mouthpiece comprising:	
23[b] a main body portion comprising: a first wall that includes two edges, a second wall set at a distance	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

The ’948 Patent	Exemplary Disclosures in the Prior Art
from the first wall, wherein the first wall and the second wall define an interior space that correspond s to the distance between the first wall and the second wall;	 FIG. 19A 

The ’948 Patent	Exemplary Disclosures in the Prior Art

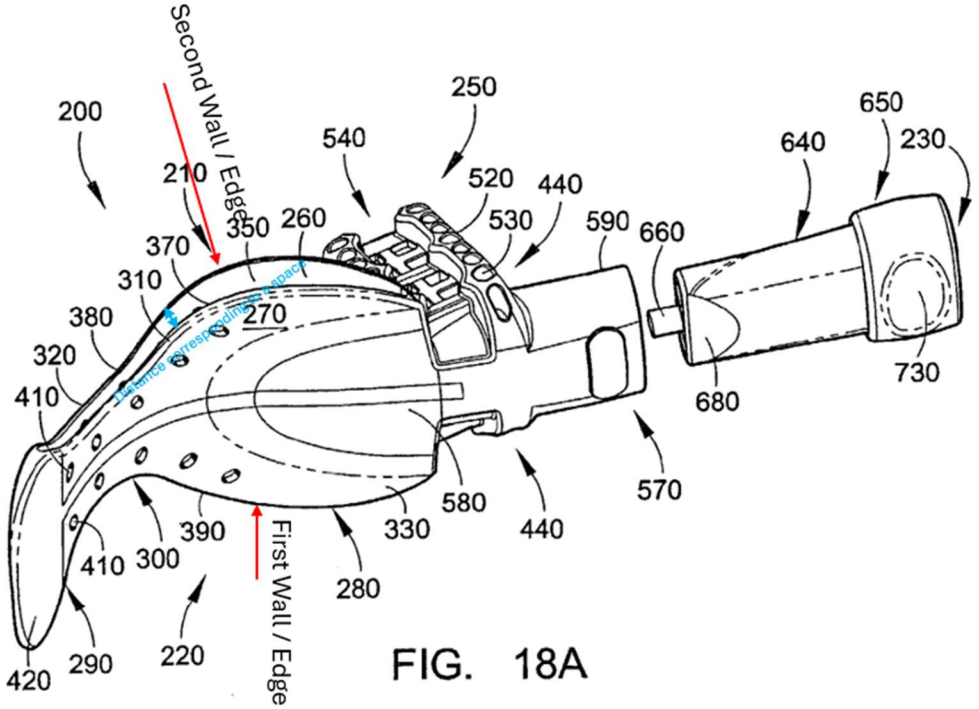
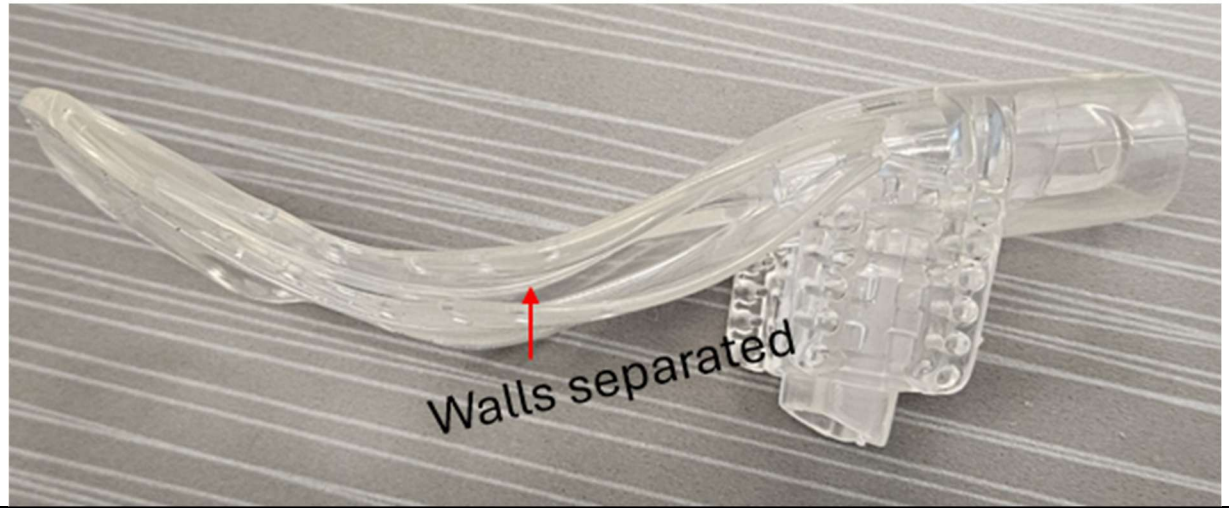
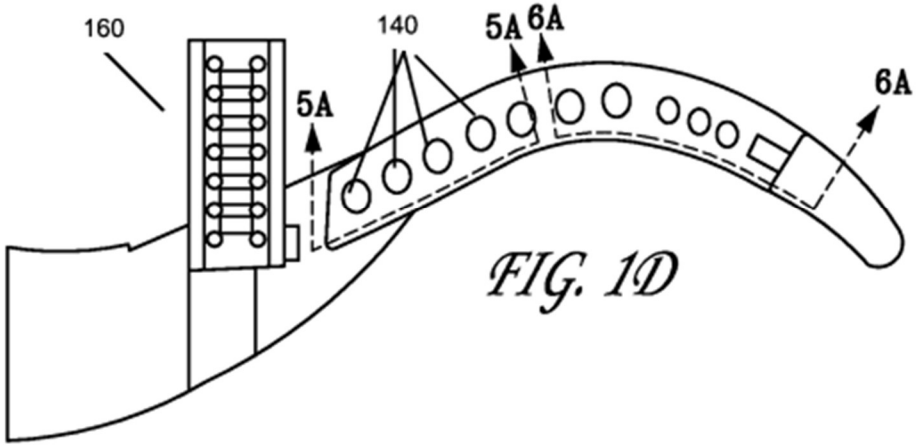
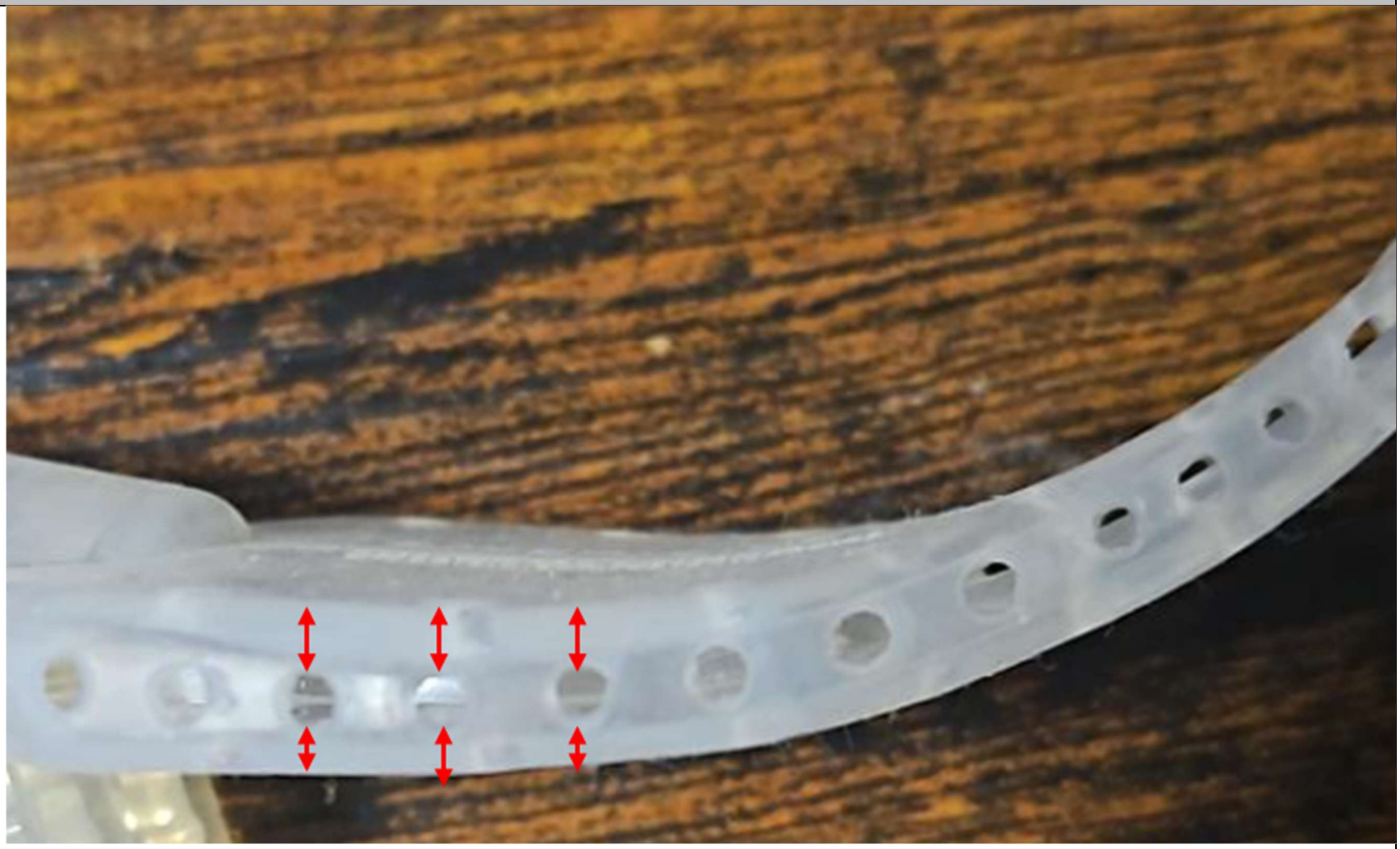
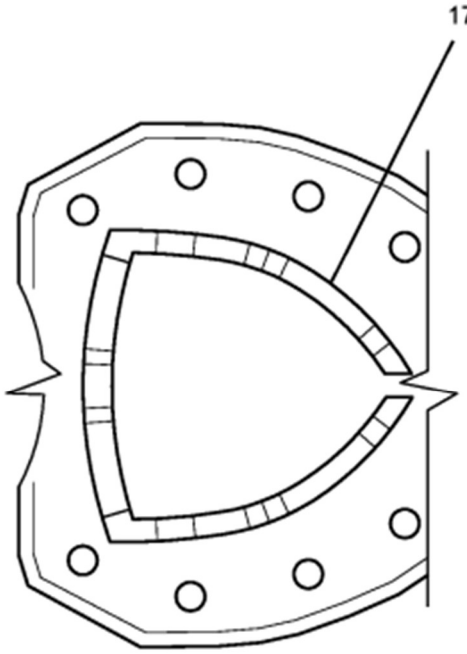


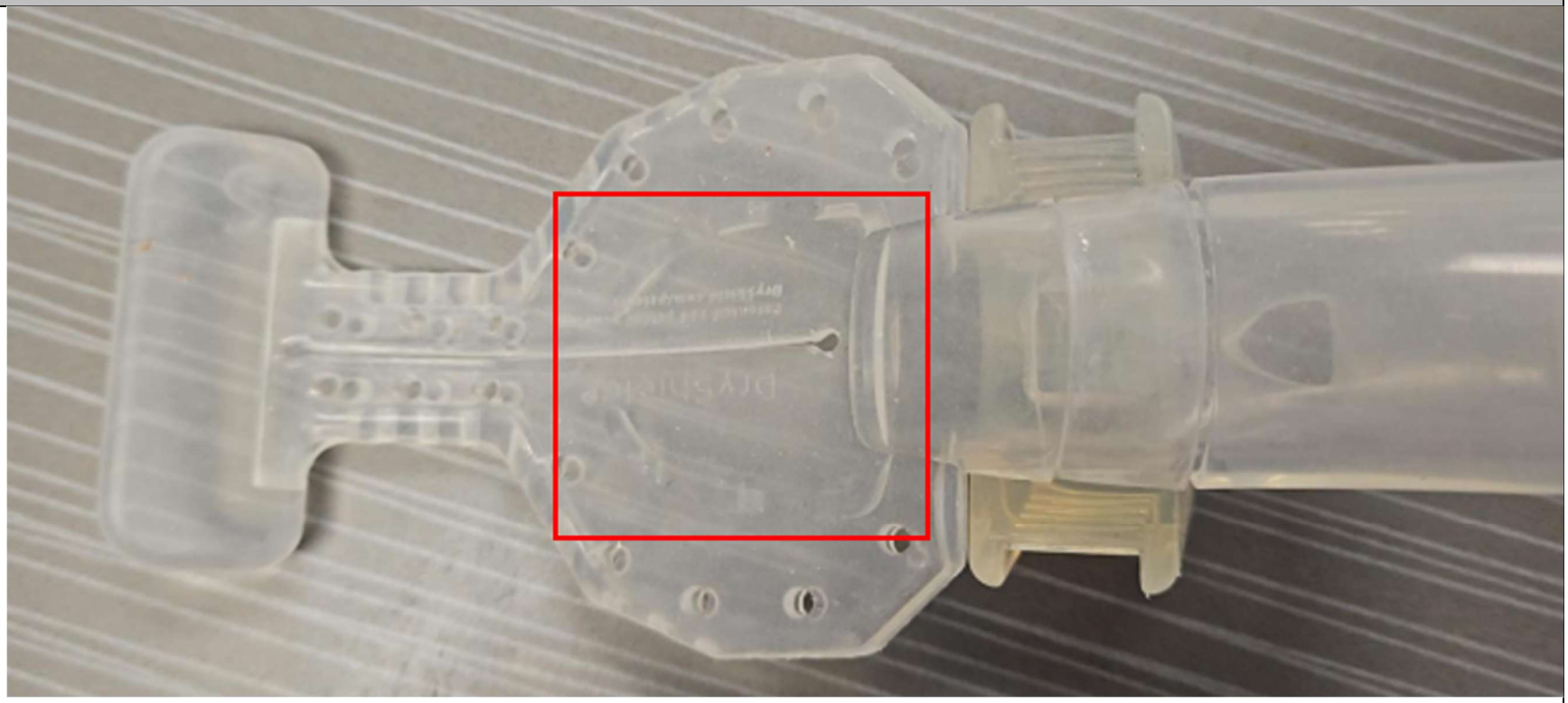
FIG. 18A



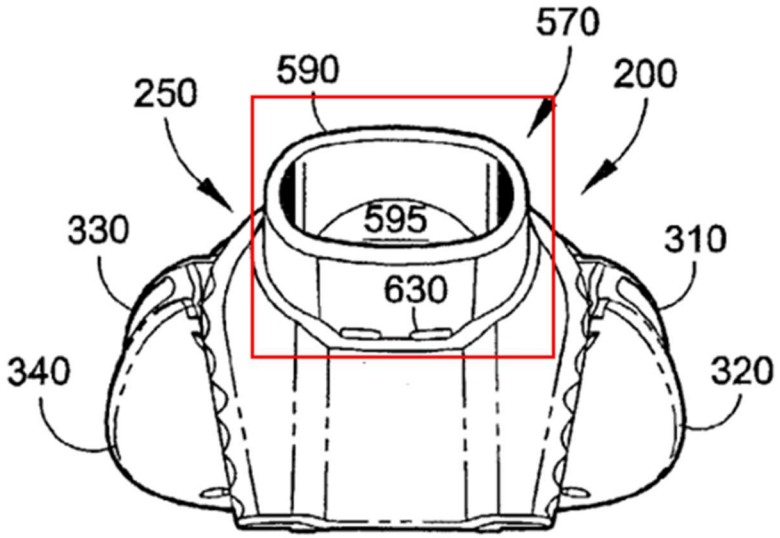
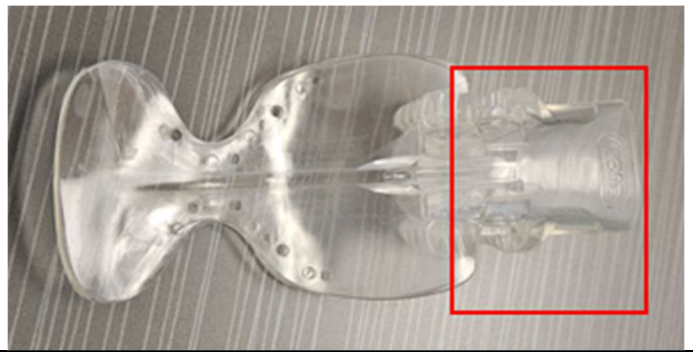
The '948 Patent	Exemplary Disclosures in the Prior Art
23[c] wherein the first wall is configured at the two edges to have a ridged configuration with a plurality of ridges extending different distances partially across the distance between the first wall and the second wall,	While Hirsch and the Isolite 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 (*see* 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. *See* Nguyen Fig. 1D, 2:10-15; 3:40-54.  FIG. 1D

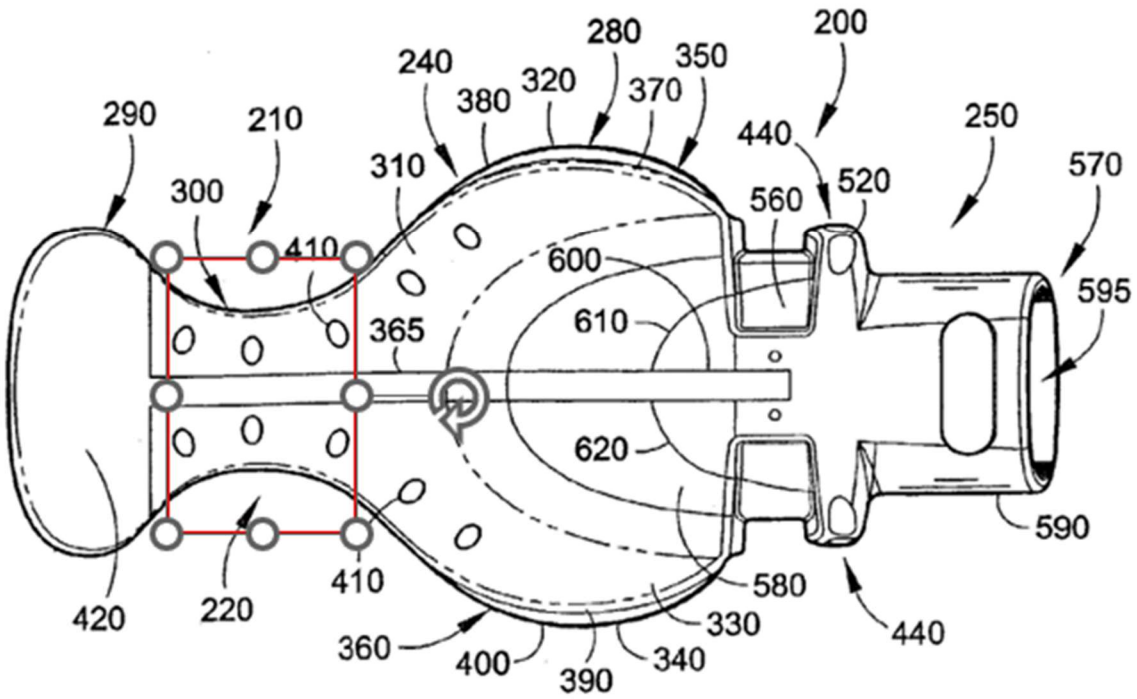
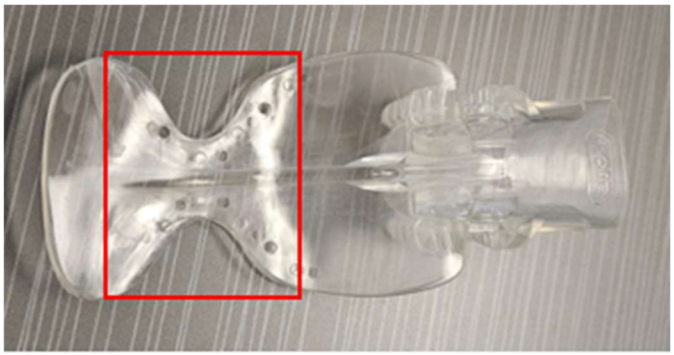
The ’948 Patent	Exemplary Disclosures in the Prior Art
	

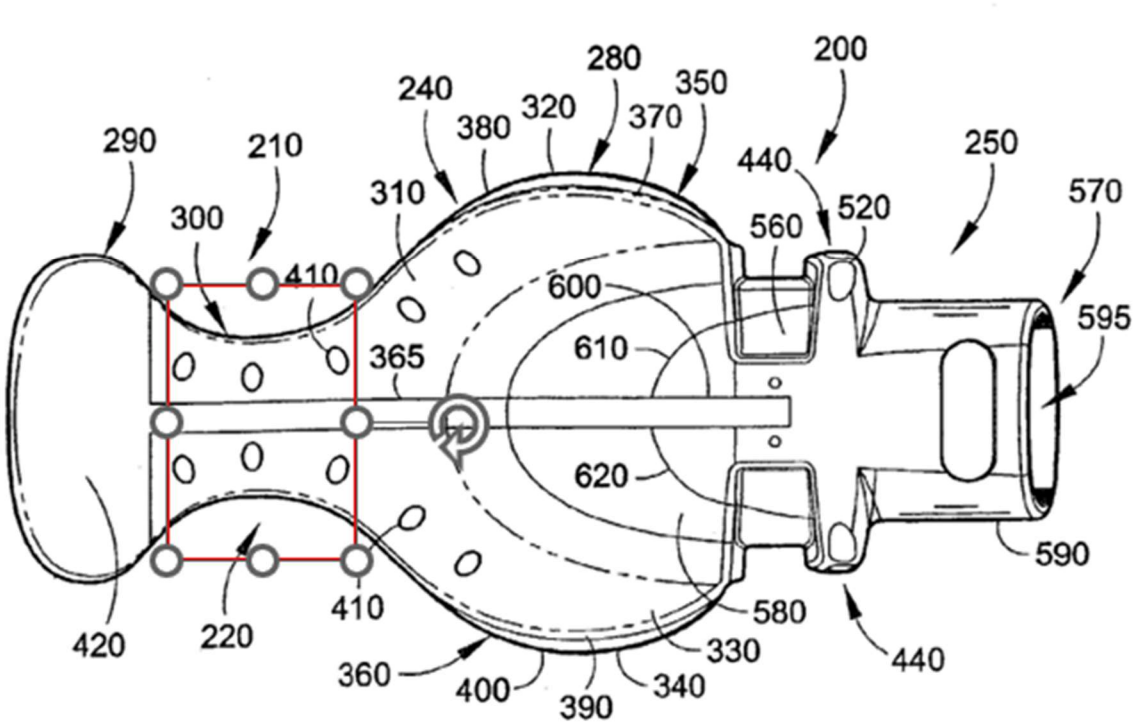
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 *FIG. 5*

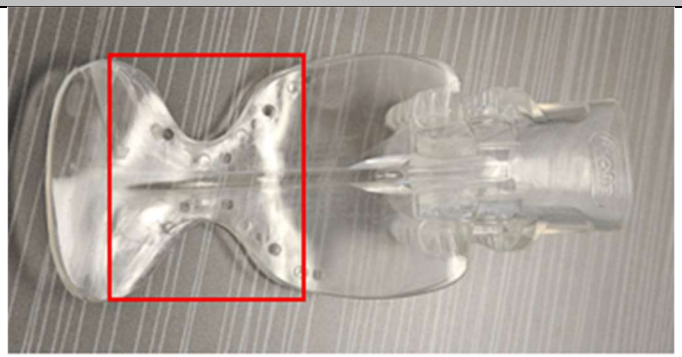
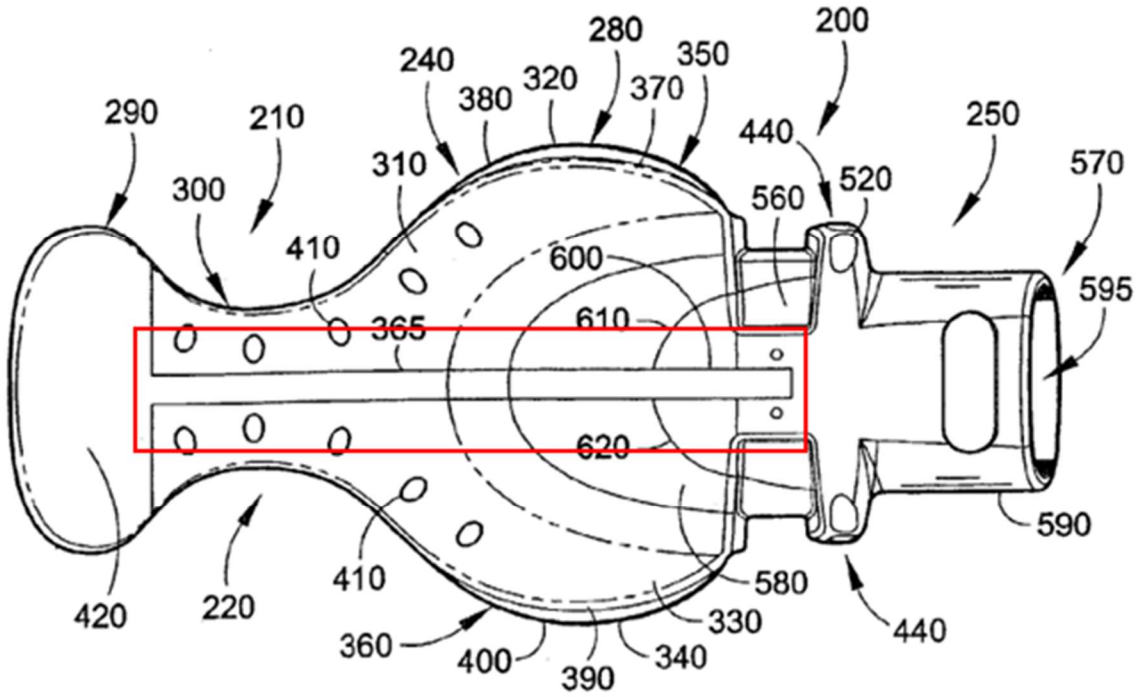
The ’948 Patent	Exemplary Disclosures in the Prior Art
	 To the extent Nguyen fails to teach any limitation 17(d), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of the above references with those taught below. The resulting combination 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.
23[d] the two edges	*See* Limitation 23[c].

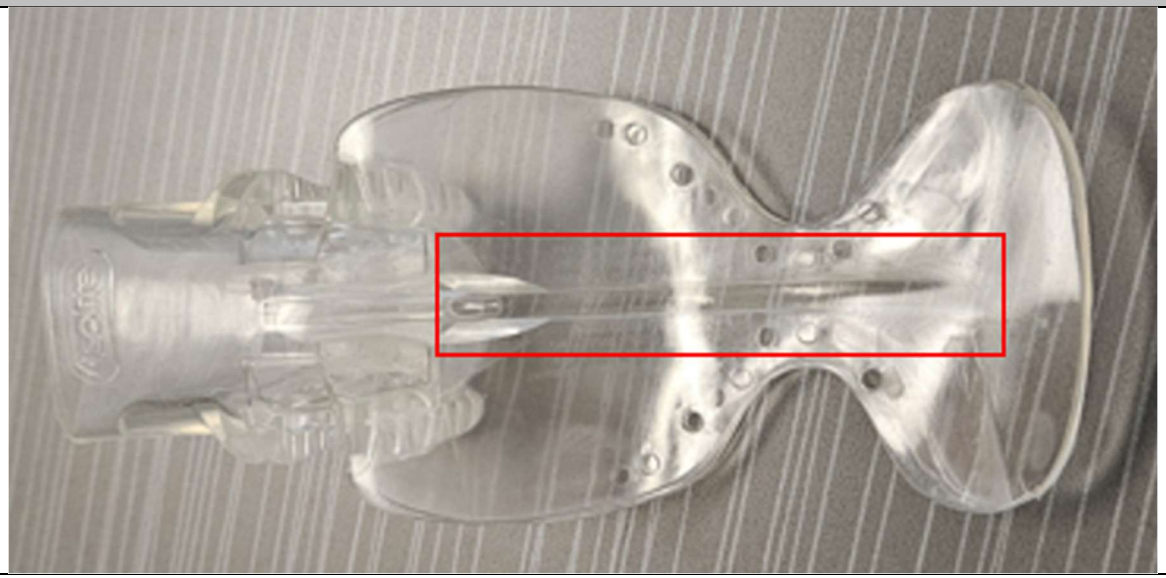
The ’948 Patent	Exemplary Disclosures in the Prior Art
of the first wall being unconnected to the second wall, the plurality of ridges forming an open-meshed configuration between the first and second walls to allow for suction of fluids from a patient's mouth into the interior space between the first and second walls; and	
23[e] a suction connector portion extending from a first end of the main body	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”

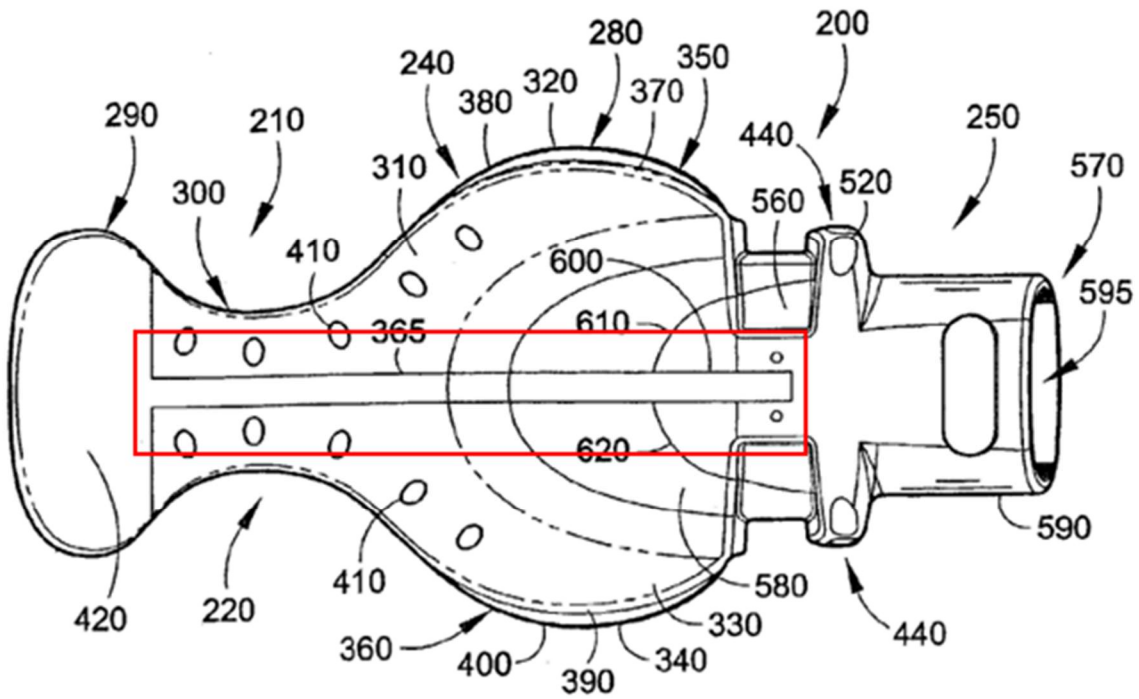
The '948 Patent	Exemplary Disclosures in the Prior Art
portion, wherein the suction connector portion includes an evacuation conduit opening into the interior space of the main body portion; and	 FIG. 19D 
23[f] a neck that extends	Both Hirsch and Isolite disclose a neck extending from the second end 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:

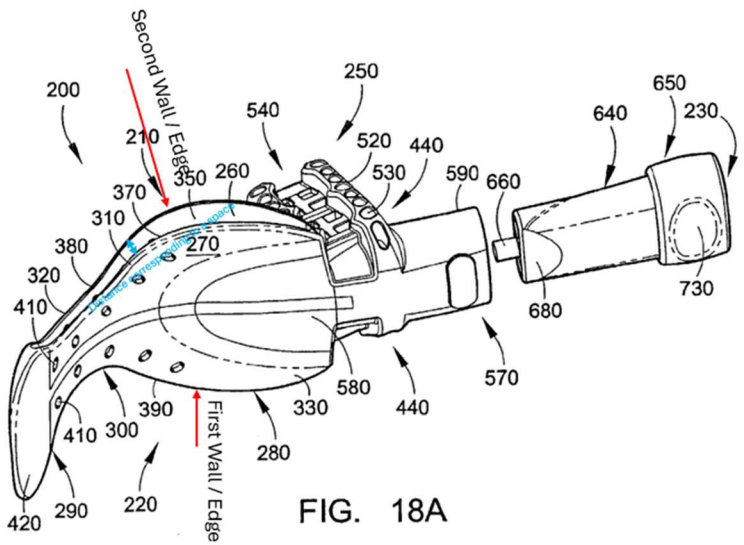
The '948 Patent	Exemplary Disclosures in the Prior Art
from the second end of the main body portion.	 FIG. 19A 

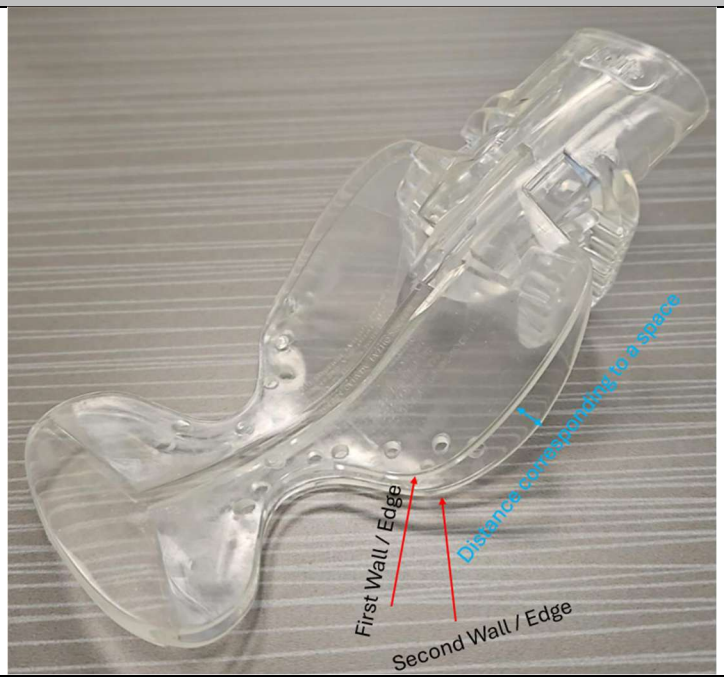
The '948 Patent	Exemplary Disclosures in the Prior Art
24 The mouthpiece of claim 23, wherein the main body portion further includes a plurality of perforations that open into the interior space, the plurality of perforations being located in the first wall and in the neck.	Both Hirsch and Isolite disclose perforations that open into the interior space, wherein those perforations are located in the first wall and in the neck.  FIG. 19A

The '948 Patent	Exemplary Disclosures in the Prior Art
	
25 The mouthpiece of claim 23, further comprising a connector wall that connects the first wall to the second wall, the connector wall extending within the interior space along a longitudinal axis of the main body portion.	Based on Solmetex's construction for infringement, the central spine also connects the walls within the interior space.  FIG. 19A

The ’948 Patent	Exemplary Disclosures in the Prior Art
	
26 The mouthpiece of claim 25, wherein the connector wall extends through the neck at the second end of the main body portion.	Both Hirsch and Isolite disclose the connector wall that extends through the neck at the second end of the main body.

The '948 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19A
27 The mouthpiece of claim 26, wherein the main body portion is formed of a flexible material	Both Hirsch and Isolite disclose a mouthpiece formed of a flexible material to allow the first wall to be pulled away from the second wall.

The ’948 Patent	Exemplary Disclosures in the Prior Art
that allows for the two edges of the first wall to be pulled away from the second wall.	 FIG. 18A

The '948 Patent	Exemplary Disclosures in the Prior Art
	
28 The mouthpiece of claim 23, wherein the main body portion is formed of a flexible material that allows for the first wall to be pulled away from the second wall.	*See* Claim 27.

The ’948 Patent	Exemplary Disclosures in the Prior Art
29 The mouthpiece of claim 28, further comprising a connector wall that connects the first wall to the second wall, the connector wall extending within the interior space along a longitudinal axis of the main body portion	*See* Claim 26.
30. The mouthpiece of claim 29, wherein the connector wall extends along the longitudinal axis along a portion of	*See* Claim 30.

The ’948 Patent	Exemplary Disclosures in the Prior Art
the main body portion.	
31 The mouthpiece of claim 30, wherein the main body portion further includes a plurality of perforations that open into the interior space, the plurality of perforations being located in the first wall and in the neck.	*See* Limitation 24.