

EXHIBIT E-0
Initial Invalidity Chart for U.S. Patent No. 12,011,329

As described in the accompany cover pleading, many of the features of the Asserted Patents are known in the prior art, as shown by the attached claim charts, and the table below. Ascentcare reserves the right to rely on references in the table below to supplement or replace the prior art in the attached claim charts. For example, Ascentcare reserves the right to use Hirsch or Isolite instead of Black or AirBug for the claim elements shown below:

US 12,011,329	Prior Art
Independent Claim 1. A mouthpiece comprising:	See Claim 19 of Ex. A-0.
Limitation 1(a): a main body having a first end opposite a second end that is narrower than the first end, the main body comprising:	See Claim 19 of Ex. A-0.
Limitation 1(b): a first wall having a plurality of first edges and extending from the first end to the second end,	See Claim 19 of Ex. A-0.
Limitation 1(c): a second wall having a plurality of second edges and located at a distance from the first wall, the distance corresponding to an interior space between the first wall and the second wall, wherein the second wall also extends from the first end to the second end,	See Claim 19 of Ex. A-0.
Limitation 1(d): a connecting wall that connects one of the first edges of the first wall to one of the second edges of the second wall across the distance between the first wall and the second wall, and	See Claim 19 of Ex. A-0.
Limitation 1(e): a bridge structure that includes a plurality of spaced protrusions protruding from an interior surface of the second wall, the bridge structure extending across the distance between the first wall and the second wall through the interior space towards the first wall; and	See Claim 19 of Ex. A-0.

Limitation 1(f): a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end, the first wall and the second wall of the main body transitioning into and being connected in the cheek-retractor portion to form the cheek-retractor portion, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-retractor portion before being connected at the cheek-retractor portion.	See Claim 19 of Ex. A-0.
Claim 4. The mouthpiece of claim 1, further comprising a suction connector extending from the first end of the main body, wherein an evacuation conduit within the suction connector is in communication with the interior space between the first wall and the second wall.	See Claim 19 of Ex. A-0.
Claim 5. The mouthpiece of claim 4, wherein a wall thickness of the suction connector is greater than a wall thickness of the first wall or the second wall of the main body.	Black, FIG. 24D Hirsch, FIG. 19D To the extent any reference is silent regarding this limitation, changes in size/proportion are obvious. <i>n re Rose</i> , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); <i>In re Rinehart</i> , 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); MPEP 2144.04(IV)(A)
Claim 6. The mouthpiece of claim 4, wherein the suction connector further includes a cutout configured to interlock with a corresponding protrusion of a vacuum adapter, wherein a shape of the cutout follows a shape of a shield logo.	See claim 9 of '970 chart To the extent any reference is silent regarding this limitation, changing the shape is obvious. <i>In re Dailey</i> , 357 F.2d 669, 149 USPQ 47 (CCPA 1966); MPEP 2144.04(IV)(B)

Claim 7. The mouthpiece of claim 1, further comprising a stability bar corresponding to a thickened area of the main body, the stability bar extending along a longitudinal axis of the main body between the first wall and the second wall, wherein a thickness of the stability bar reinforces at least a portion of the main body.	Black: FIG. 23A, longitudinal thickener 347 Hirsch '321: FIG. 19A, Col. 11 Ln. 52–67, spine 365 KR101217041: FIG. 1 - spine KR101082826 – FIG. 2-3 – line for light. CN102631180: FIGS. 1, 3 and 4 – spine To the extent any reference fails to teach claim 7, it would have been obvious for an ordinarily skilled artisan to combine the central spine taught by any of the above or the longitudinal stiffener or Black to an isolation mouthpiece. The resulting combination would satisfy the requirements of the claimed invention.
Independent Claim 9. An isolation mouthpiece for use with a suction system in a dental procedure, the mouthpiece comprising:	See Claim 19 of Ex. A-0.
Limitation 9(a): a main body portion having a first end and a second end, the main body portion including:	See Claim 19 of Ex. A-0.
Limitation 9(b): a first wall having a first edge and a second edge extending from the first end of the main body portion towards the second end of the main body portion, the first wall including a first plurality of perforations formed adjacent to and extending along a portion of the first edge and a second plurality of perforations formed adjacent to and extending along a portion of the second edge,	See claim 19 of '969 Chart Black: FIG. 4C, 13 KR101082826: FIG. 2 CN102631180: FIG. 3
Limitation 9(c): a second wall having a third edge and a fourth edge extending from the first end of the main body portion towards the second end of the main body portion, the second wall including a third plurality of perforations formed adjacent to and extending along a portion of the third edge, and a fourth	See claim 19 of '969 Chart Hirsch: FIGs. 19A, 19E Black: FIG. 4C, 13 KR101082826: FIG. 2 CN102631180: FIG. 3

plurality of perforations formed adjacent to and extending along a portion of the fourth edge,	
Limitation 9(d): wherein the second wall further includes a plurality of protrusions extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs, and	See Claim 19 of Ex. A-0.
Limitation 9(e): a third wall connecting the first wall and the second wall such that the first wall is spaced from the second wall to define an inner cavity, wherein a portion of the first wall has a first width adjacent to the first end of the main body portion and a second width adjacent to the second end of the main body portion, wherein a portion of the second wall has a third width adjacent to the first end of the main body portion and a fourth width adjacent to the second end of the main body portion, wherein the first width is greater than the second width, and wherein the third width is greater than the fourth width;	See Claim 19 of Ex. A-0.
Limitation 9(f): a suction connector portion extending from the first end of the main body portion, the suction connector portion including:	See Claim 19 of Ex. A-0.
Limitation 9(g): a generally tubular conduit including:	See Claim 19 of Ex. A-0.
Limitation 9(h): an opening extending through the conduit and in fluid communication with the inner cavity, the opening being configured to receive a	See Claim 19 of Ex. A-0.

vacuum portion of the suction system therein, and	
Limitation 9(i): a cutout configured to engage a protrusion on the suction system to aid in coupling the mouthpiece to the suction system;	See Claim 19 of Ex. A-0.
Limitation 9(j): a mouth prop including a first side and a second side that are inwardly tapered from a top surface of the mouth prop towards a bottom surface of the mouth prop, the first side and the second side each including a plurality of ridges; and	Hirsch '321: FIG. 3 "The bite block 26 includes ribs 94 and ridges 96 along opposite faces 98 of the bite block 26." Black: FIG. 21A "Moreover, each of the upper member 324 and the lower member 326 may include, on its respective outer surface, shaped regions 329, which are adapted to serve as "tooth" or "molar" guides for a more secure fit between the patient's upper and lower jaws." KR101217041: FIG. 1, Refs. 30, 31, 32 CN02631180: FIG. 3, Ref. 5
Limitation 9(k): a cheek retractor portion having a first cheek-retractor end coupled to the second end of the main body portion and a second cheek-retractor end, the first cheek-retractor end and the second cheek-retractor end each having rounded edges, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-retractor portion before being connected to each other in the cheek-retractor portion.	See Claim 19 of Ex. A-0.
Claim 10. The mouthpiece of claim 9, wherein the cutout has a shield shape.	See claim 9 of '970 chart To the extent any reference is silent regarding this limitation, changing the shape is obvious.

	<i>In reDailey</i> , 357 F.2d 669, 149 USPQ 47 (CCPA 1966); MPEP 2144.04(IV)(B)
Claim 11. The mouthpiece of claim 9, wherein the cutout is generally triangular and has a top edge, a first curved edge, and a second curved edge.	See claim 9 of '970 chart To the extent any reference is silent regarding this limitation, changing the shape is obvious. <i>In reDailey</i> , 357 F.2d 669, 149 USPQ 47 (CCPA 1966); MPEP 2144.04(IV)(B)
Claim 12. The mouthpiece of claim 9, wherein a wall thickness of the conduit is greater than a wall thickness of the first wall or the second wall of the main body.	Black, FIG. 24D Hirsch, FIG. 19D To the extent any reference is silent regarding this limitation, changes in size/proportion are obvious. <i>n re Rose</i> , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); <i>In re Rinehart</i> , 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); MPEP 2144.04(IV)(A)
Claim 13. The mouthpiece of claim 9, wherein the first plurality of perforations of the first wall and the second plurality of perforations of the first wall each include at least five perforations.	See Claim 9 of '329 Chart Duplication of parts is obvious. <i>In reHarza</i> , 274 F.2d 669, 124 USPQ 378 (CCPA 1960); MPEP 2144.04(VI)(B)
Claim 14. The mouthpiece of claim 13, wherein the third plurality of perforations of the second wall and the fourth plurality of perforations of the second wall each include at least three perforations.	See Claim 9 of '329 Chart Duplication of parts is obvious. <i>In reHarza</i> , 274 F.2d 669, 124 USPQ 378 (CCPA 1960); MPEP 2144.04(VI)(B)
Independent Claim 30. An isolation mouthpiece for use with a suction system in a dental procedure, the mouthpiece comprising:	See Claim 19 of Ex. A-0.
Limitation 30(a): a main body portion having a first end and a second end, the main body portion including:	See Claim 19 of Ex. A-0.
Limitation 30(b): a first wall having a first edge and a second edge extending from the first end of the main body portion towards the second end of the main body portion, the first	See Claim 19 of Ex. A-0.

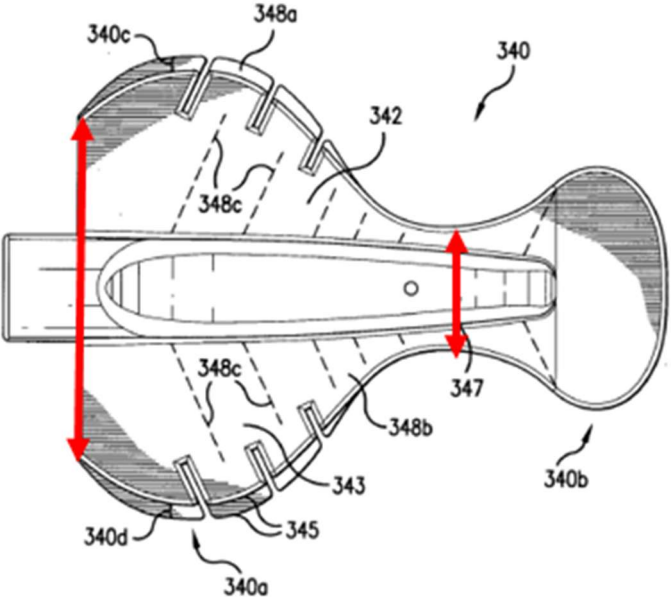
wall including a first plurality of perforations formed adjacent to and extending along a portion of the first edge and a second plurality of perforations formed adjacent to and extending along a portion of the second edge,	
Limitation 30(c): a second wall having a third edge and a fourth edge extending from the first end of the main body portion towards the second end of the main body portion, the second wall including a third plurality of perforations formed adjacent to and extending along a portion of the third edge, and a fourth plurality of perforations formed adjacent to and extending along a portion of the fourth edge,	See Claim 19 of Ex. A-0.
Limitation 30(d): wherein the second wall further includes a plurality of protrusions extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs, and wherein the first wall and the second wall are shaped such that the first edge of the first wall corresponds to the third edge of the second wall and the second edge of the first wall corresponds to the fourth edge of the second wall, and	See Claim 19 of Ex. A-0.
Limitation 30(e): a third wall connecting the first wall and the second wall such that the first wall is spaced from the second wall to define an inner cavity, wherein a portion of the first wall has a first width adjacent to the first end of the main body portion and a second width adjacent to the second end of the main body portion, wherein a portion of the second wall has a third width adjacent to the first end of the main body portion and a	See Claim 19 of Ex. A-0.

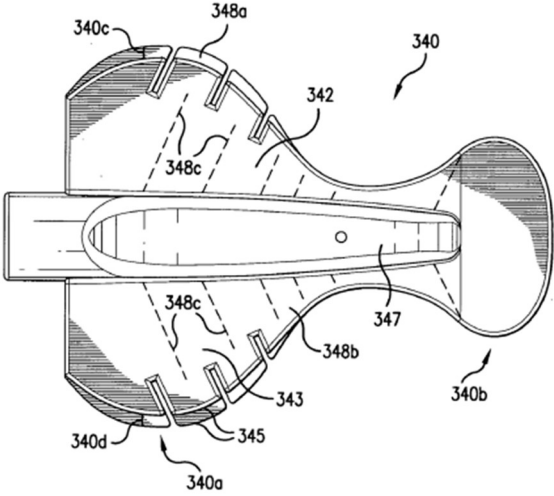
fourth width adjacent to the second end of the main body portion, wherein the first width is greater than the second width, and wherein the third width is greater than the fourth width;	
Limitation 30(f): a suction connector portion extending from the first end of the main body portion, the suction connector portion including:	See Claim 19 of Ex. A-0.
Limitation 30(g): a generally tubular conduit including:	See Claim 19 of Ex. A-0.
Limitation 30(h): an opening extending through the conduit and in fluid communication with the inner cavity, the opening being configured to receive a vacuum portion of the suction system therein, and	See Claim 19 of Ex. A-0.
a cutout configured to engage a protrusion on the suction system to aid in coupling the mouthpiece to the suction system;	See Claim 9 of Ex. C-0.
Limitation 30(i): a mouth prop including a first side and a second side that are inwardly tapered from a top surface of the mouth prop towards a bottom surface of the mouth prop, the first side and the second side each including a plurality of ridges; and	See Claim 9 of E-0.
Limitation 30(j): a cheek retractor portion having a first cheek-retractor end coupled to the second end of the main body portion and a second cheek-retractor end, the first cheek-retractor end and the second cheek-retractor end each having rounded edges.	See Claim 19 of Ex. A-0.

EXHIBIT E-1 (Claims 1, 4, and 5 are Anticipated In View of Black)
Initial Invalidity Chart for U.S. Patent No. 12,011,329

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 pre-AIA 35 U.S.C. § 102 and as described in the cover pleading and shown below, Black was patented or printed in a publication more than one year prior to the filing date of the application, and therefore anticipates and/or renders obvious, either alone or in combination with the other prior art, the knowledge of one of ordinary skill in the art, or one or more of the references identified in the cover pleading and/or one or more of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 12,011,329.

The '329 Patent	Exemplary Disclosures in the Prior Art
1[a] A mouthpiece comprising: 1[b] a main body having a first end opposite a second end that is narrower than the first end, the main body comprising:	To the extent the preamble is limiting, each of the prior art references discussed herein are mouthpieces Black teaches a tongue shield aspirator 340 having a first flap 340a that retracts a patient's tongue and a second flap 340b that retracts a patient's cheek. Black, 14:1-9. The first flap 340a is a main body. As shown, the first flap 340a has a first end (left end in FIG. 23A below) and a second opposite end (right end in FIG. 23B below). Annotated FIG. 23A below shows that the second end is narrower than the first end.  FIG. 23A
1[c] a first wall having a plurality of first edges and extending from the first end to the second end;	Black teaches that the first flap 340a includes an anterior layer 348b. Black, 14:25-30. A PHOSITA would consider this to be a first wall. FIG. 23A of Black shows that the anterior layer has a shape defined by multiple edges, and that the anterior layer 348b extends from the first end to the second end.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 23A
1[d] a second wall having a plurality of second edges and located at a distance from the first wall, the distance corresponding to an interior space between the first wall and the second wall, wherein the second wall also extends from the first end to the second end,	Black teaches that the first flap 340a includes a posterior layer 348a. Black, 14:25-30. A PHOSITA would consider this to be a second wall. FIG. 23B of Black shows that the posterior layer 348a has a shape defined by multiple edges, and that the posterior layer 348a extends from the first end to the second end.

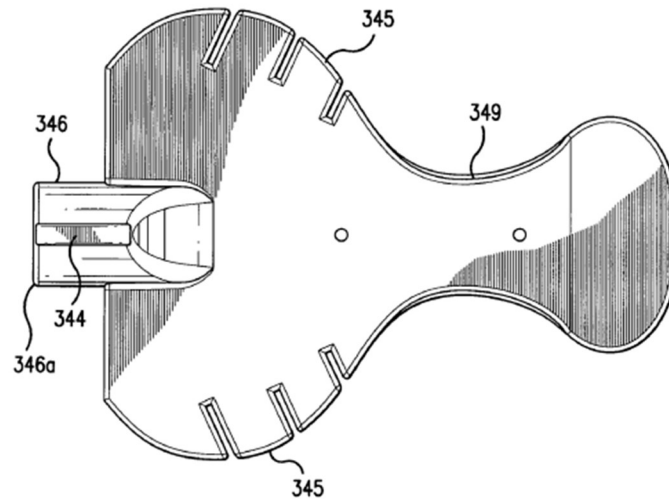


FIG. 23B

The posterior layer 348a is spaced apart from the anterior layer 348b by transverse walls 348c. Black, 14:25-30. FIG. 23C of Black shows an interior area between the posterior and anterior layers 348a, 348b, and FIG. 23A of Black show the channels 342, 343 created between the transverse walls 348c. Black, 14:30-63. The tongue shield aspirator 340 also has a longitudinal lumen that runs down the center of the mouthpiece and is fluidly connected to each channel 342, 343. Black, FIG. 3B, FIG. 23A, 14:21-25. Both the lumen and the channels 342, 343 are interior spaces between the posterior layer 348a and the anterior layer 348b.

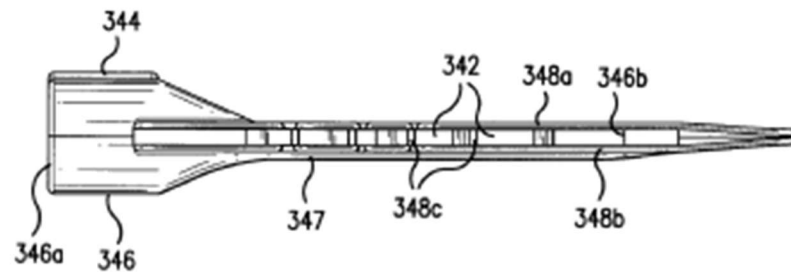
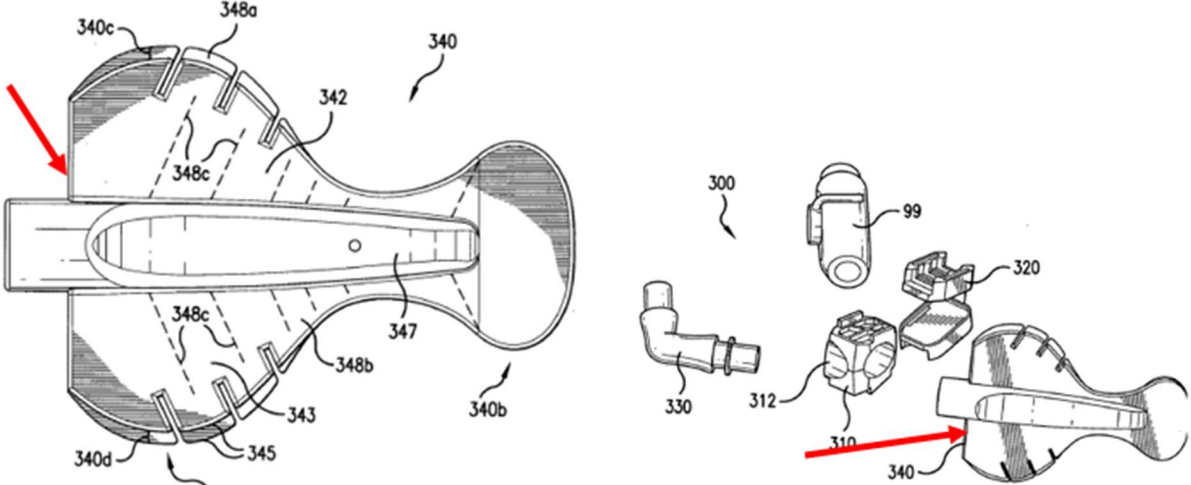
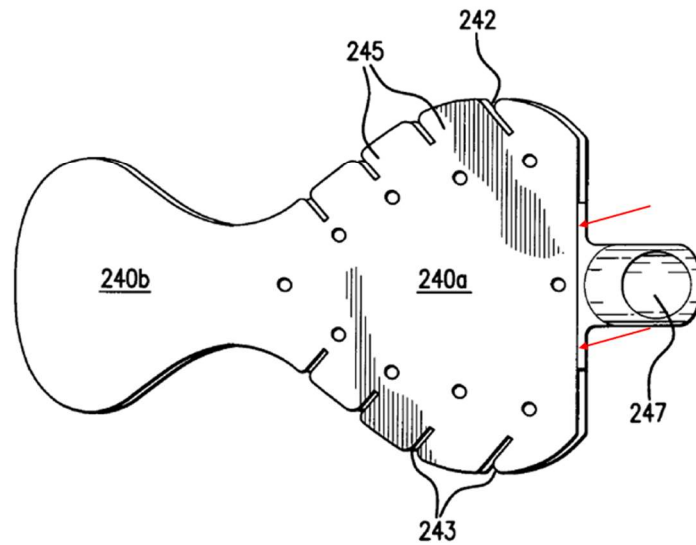
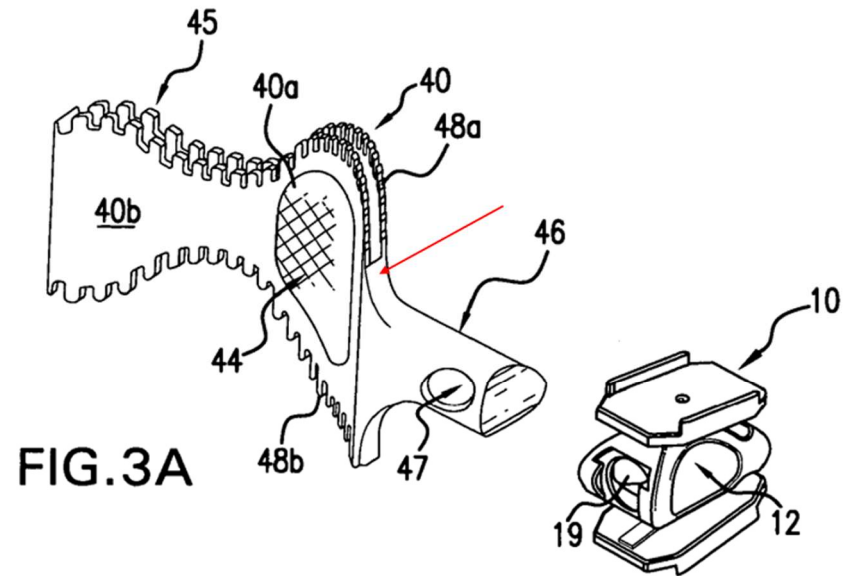
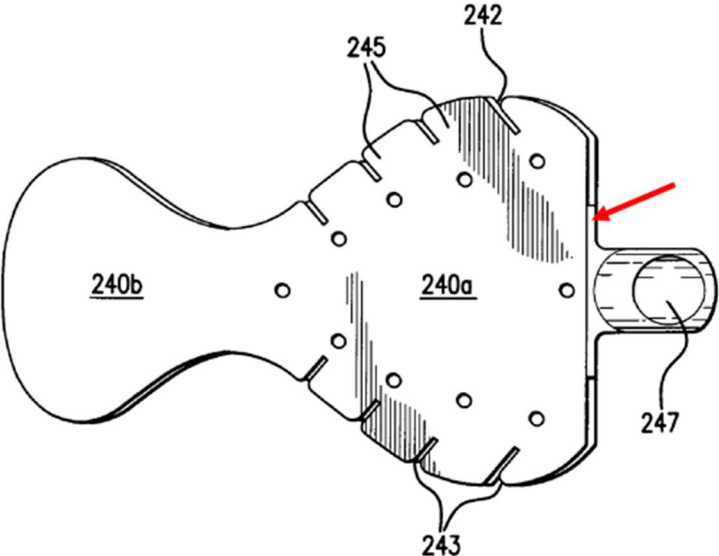
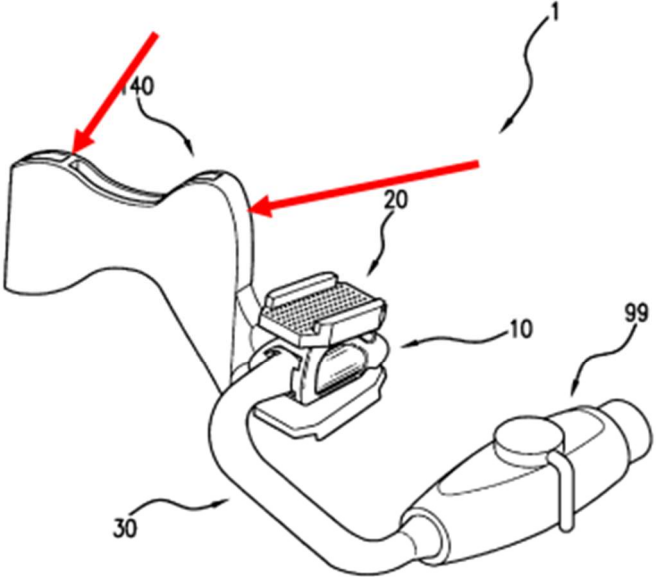


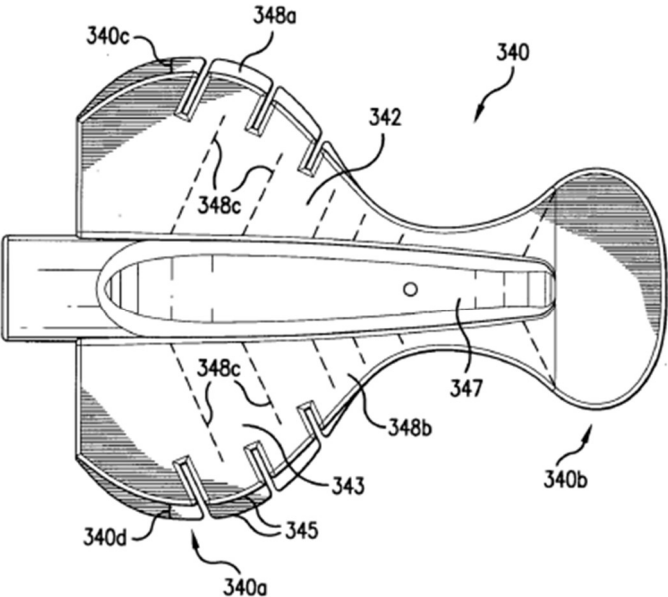
FIG. 23C

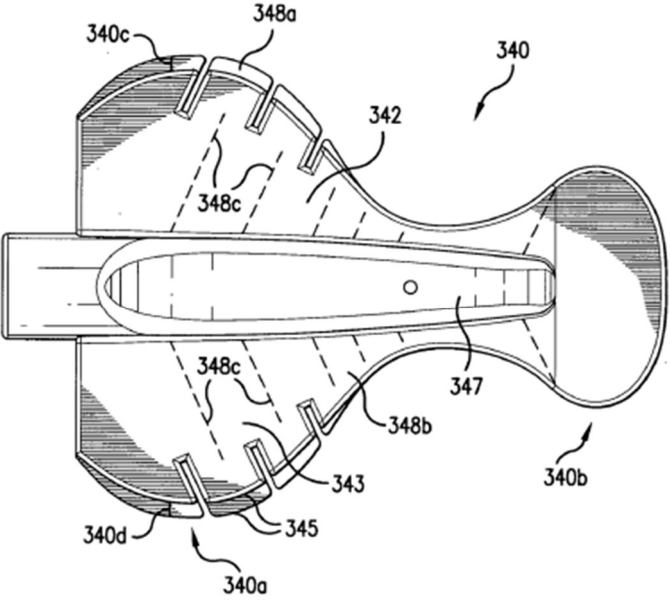
The '329 Patent	Exemplary Disclosures in the Prior Art
1[e] a connecting wall that connects one of the first edges of the first wall to one of the second edges of the second wall across the distance between the first wall and the second wall, and	Black teaches that the first flap 340a has a connecting wall. Black, FIG. 23A, <i>see also</i> FIGS. 19, 1, 3A, 4C, 24D.  FIG. 23A is a perspective view of a dental device 340. It features a first flap 340a with a connecting wall 342. Other components labeled include 340c, 348a, 348c, 348b, 343, 345, 340d, 340b, and 347. A red arrow points to the connecting wall 342. FIG. 19 is a perspective view of a dental device 300. It shows a first flap 340 with a connecting wall 310. Other components labeled include 330, 312, 320, 310, 340, and 99. A red arrow points to the connecting wall 310.

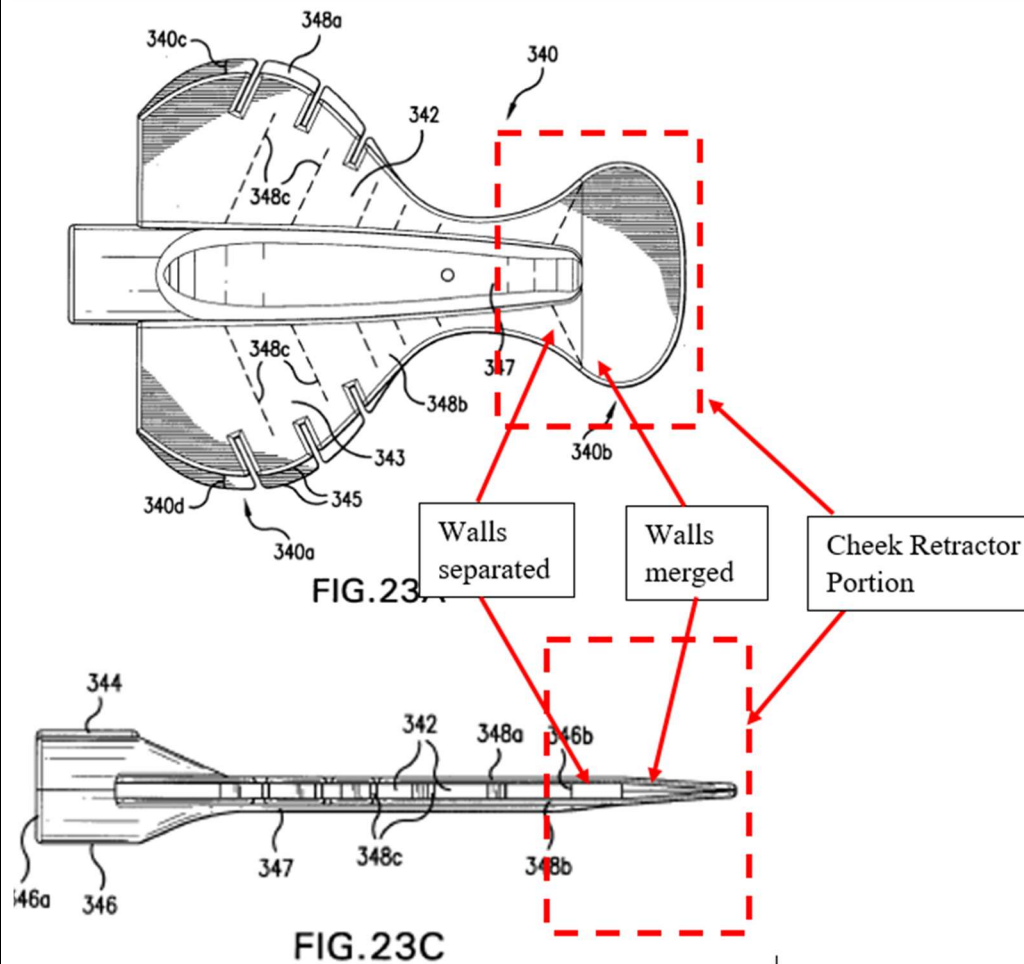


The '329 Patent	Exemplary Disclosures in the Prior Art
	For example, the tongue shield aspirator 240 includes a connecting wall formed near the “hollow neck 246”, which is the suction port of the tongue shield aspirator. FIG. 4C clearly shows a wall formed near the suction port and connecting the posterior flap and the anterior flap. It would have been obvious to include the connecting wall shown in FIG. 4C in the tongue shield aspirator 340 to provide additional structural integrity and more anti-collapse structure near the neck 346.  FIG.4C This wall connects an edge of the anterior flap to an edge of the posterior flap, exactly as claimed. Many other embodiments of Black show similar walls with different widths varying from partially expanding along an edge of the mouthpiece to extending across the entirety of an edge.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1
1[f] a bridge structure that includes a plurality of spaced protrusions protruding from an interior surface of the second wall, the bridge structure extending across the distance between the first wall and the second wall through the interior space towards the first wall; and	Black teaches transverse walls 348c spaced apart from each other to form channels 342 therebetween. Black, 14:21-47. Black explains that these transverse walls form conduits for debris and fluid, “thereby allowing for simultaneous aspiration of debris and fluid from top (palate of mouth) to bottom (floor of mouth), and through the passageway, during dental procedures.” Black, 14:38-47. Black also explains that the transverse walls prevent collapse under suction. Black, 14:21-47; The transverse walls 348c are a bridge structure, as claimed. EX1015, pp. 51-52; Indeed, the Examiner also found that Black taught the claimed bridge structure. <i>Id.</i> The transverse walls extend from an interior surface of the posterior flap 348a and to the anterior flap 348b (transverse walls shown dashed). Black, 14:21-47; Thus, the transverse walls are protrusions. <i>Id.</i>

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 23A
1[g] a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end, the first wall and the second wall of the main body transitioning into and being connected in the cheek-retractor portion to form the cheek-retractor portion, wherein the first wall and the second wall of the main body	Black teaches a second flap 340b that functions as a cheek retractor and is formed on the opposite side of the tongue shield aspirator 340 from the neck 346. Black, 14:5-9, FIG. 23A. As shown in FIG. 23A the second flap 340b is connected to, and expands outwardly away from, the second end of the first flap 340a.

The '329 Patent	Exemplary Disclosures in the Prior Art
portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-retractor portion before being connected at the cheek-retractor portion.	 FIG. 23A FIG. 23C of Black illustrates that both the posterior and anterior layers 348b, 348a transition into the second flab 340b (cheek retractor). For a short distance after the narrowest portion of the isthmus (349) the layers 348a, 348b remain separated from one another before merging together to form the cheek retractor. Annotated FIG. 23C (below) illustrates that the posterior layer 348a and the anterior layer 348b are separated in the cheek retractor portion (dashed area) and then merge together in the dashed area.



Black explains: “In embodiments of the invention, the upper opening defined by the space between the top edges of the anterior and posterior layers, and the lower opening defined by the space between the bottom edges of the anterior and posterior layers may extend through the transition section 349 (as shown, e.g., in FIG. 23C) *as well as at least a portion of the distal flap 340b.*” Black, 15:14-20. This is exactly how the cheek retractor portion is claimed in claim 1.

Therefore, Black alone teaches each and every limitation of claim 1.

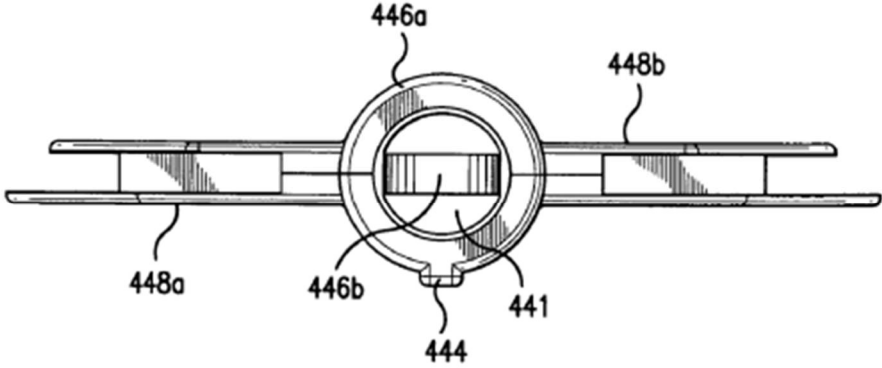
The '329 Patent	Exemplary Disclosures in the Prior Art
4 The mouthpiece of claim 1, further comprising a suction connector extending from the first end of the main body, wherein an evacuation conduit within the suction connector is in communication with the interior space between the first wall and the second wall.	Black teaches a hollow neck 346 formed on one end of the tongue shield aspirator 340 that connects the aspirator 340 to an evacuation tube, which is a vacuum source (HVE valve) that connects to the channels in the tongue shield aspirator. Black, Abstract, 1:62-2:7, 10:18-33, 15:21-51, 16:1-3, FIGS. 23C, 24D. Black also teaches that the neck 346 (suction connector) has a conduit through it that is in communication with the channels 342, 343 of the tongue shield aspirator 340. Black, 15:21-35.
5 The mouthpiece of claim 4, wherein a wall thickness of the suction connector is greater than a wall thickness of the first wall or the second wall of the main body.	Black clearly illustrates that the neck 446 is much thicker than the posterior or anterior layers 448a, 448b. FIG. 24D  FIG. 24D

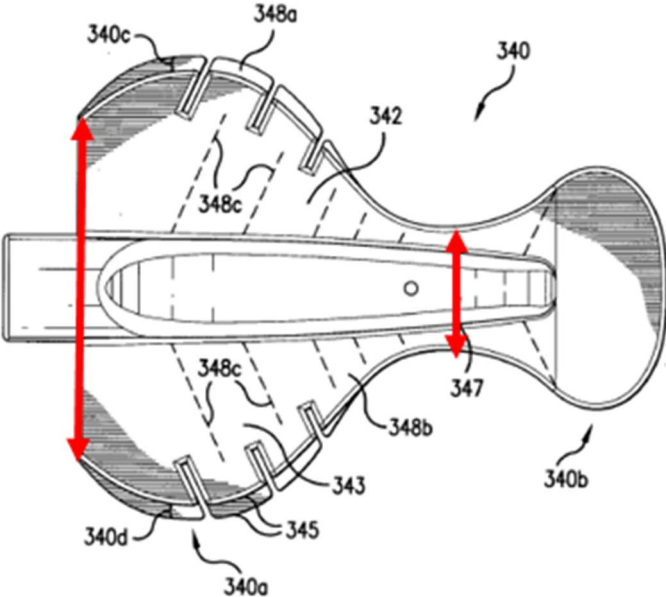
EXHIBIT E-2 (Black or AirBug in View of One or More of the Skill of a PHOSITA, Hirsch, Isolite Mouthpiece, or Park)
Initial Invalidity Chart for U.S. Patent No. 12,011,329

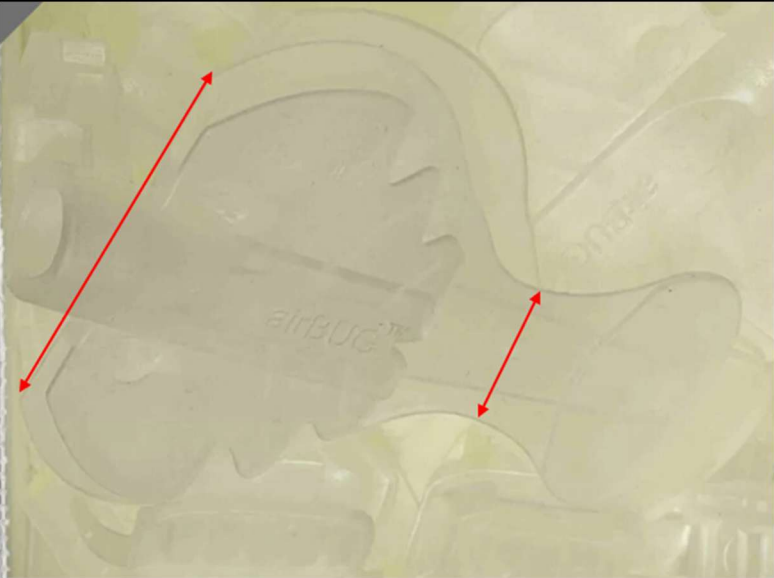
Ascentcare incorporates by reference the cover pleading to its Initial Invalidity Contentions. These Initial Invalidity Contentions, including these claim charts, are not an admission regarding claim scope or the accused products, and, in particular, that the accused products, including any current or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

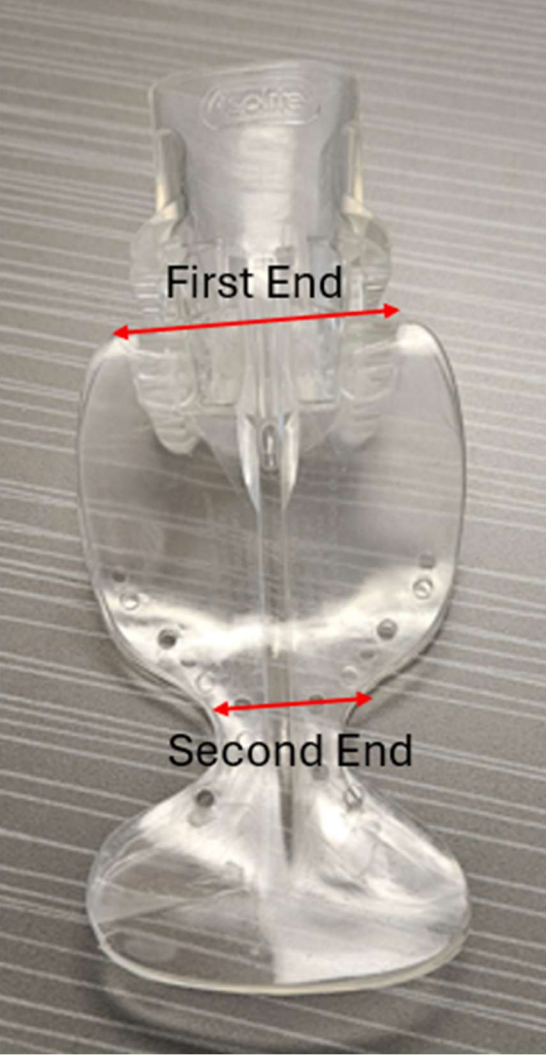
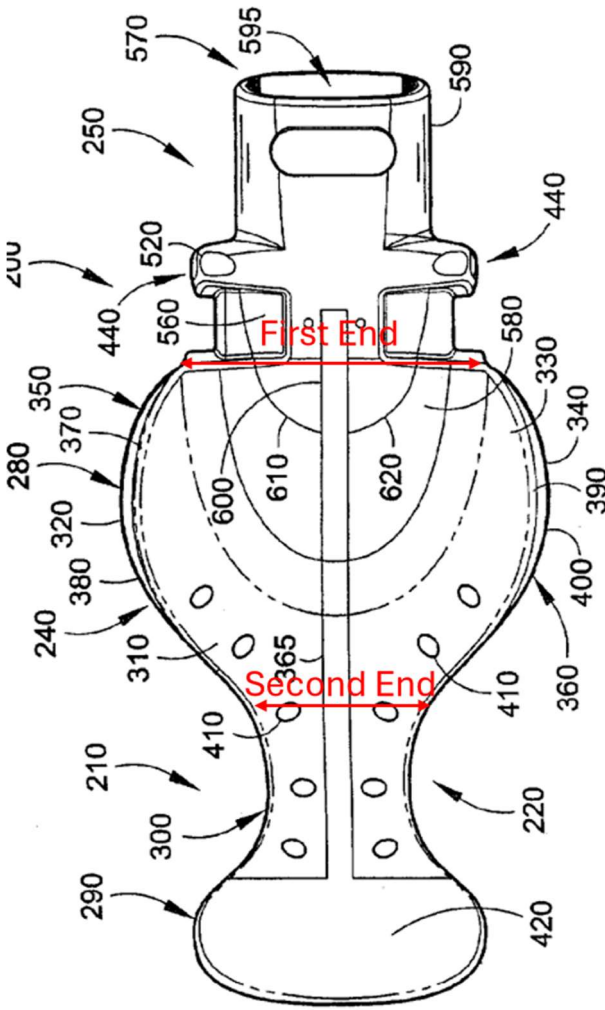
Pursuant to pre-AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, Black and Hirsch were patented or printed in a publication more than one year prior to the filing date of the application, and therefore anticipates and/or renders obvious, either alone or in combination with the other prior art, the knowledge of one of ordinary skill in the art, or one or more of the references identified in the cover pleading and/or one or more of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 12,011,329.

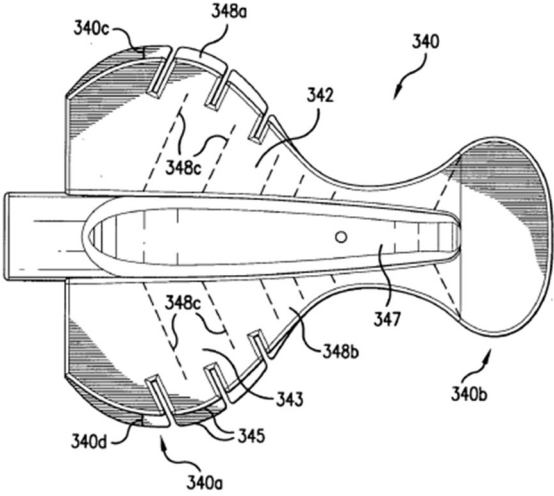
Pursuant to pre-AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, the AirBug Mouthpiece¹ and the Isolite Mouthpiece were on sale or in public use more than one year prior to the priority date of the '329 Patent, and therefore anticipates and/or renders obvious, either alone or in combination with the other prior art, the knowledge of one of ordinary skill in the art, or one or more of the references identified in the cover pleading and/or one or more of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 12,011,329.

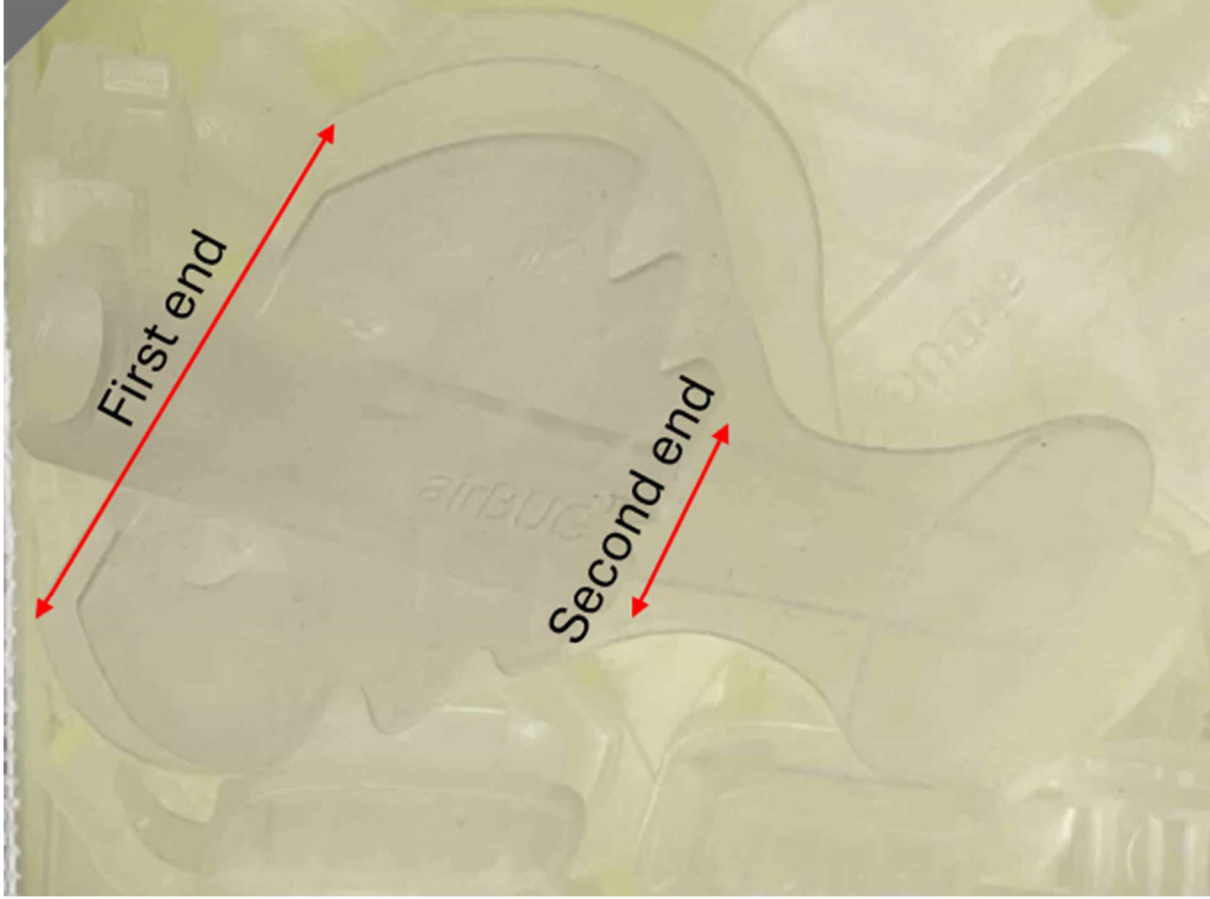
¹ It is Ascentcare's understanding that several of the embodying products discussed herein may have multiple embodiments over the years. Discovery is ongoing, and Ascentcare has issued subpoenas seeking the prior art embodiments. To the extent that Ascentcare currently relies on more current embodiments 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 the AirBug Mouthpiece is a product embodying Black, and thus, any of the references to Black likewise support the AirBug Mouthpiece, and vice versa. Likewise, the same analysis applies to the Isolite Mouthpiece and Hirsch.

The '329 Patent	Exemplary Disclosures in the Prior Art
1[a] A mouthpiece comprising: 1[b] a main body having a first end opposite a second end that is narrower than the first end, the main body comprising:	To the extent the preamble is limiting, each of the prior art references discussed herein are mouthpieces Black teaches a tongue shield aspirator 340 having a first flap 340a that retracts a patient's tongue and a second flap 340b that retracts a patient's cheek. Black, 14:1-9. The first flap 340a is a main body. As shown, the first flap 340a has a first end (left end in FIG. 23A below) and a second opposite end (right end in FIG. 23B below). Annotated FIG. 23A below shows that the second end is narrower than the first end.  FIG. 23A AirBug Mouthpiece discloses the same:

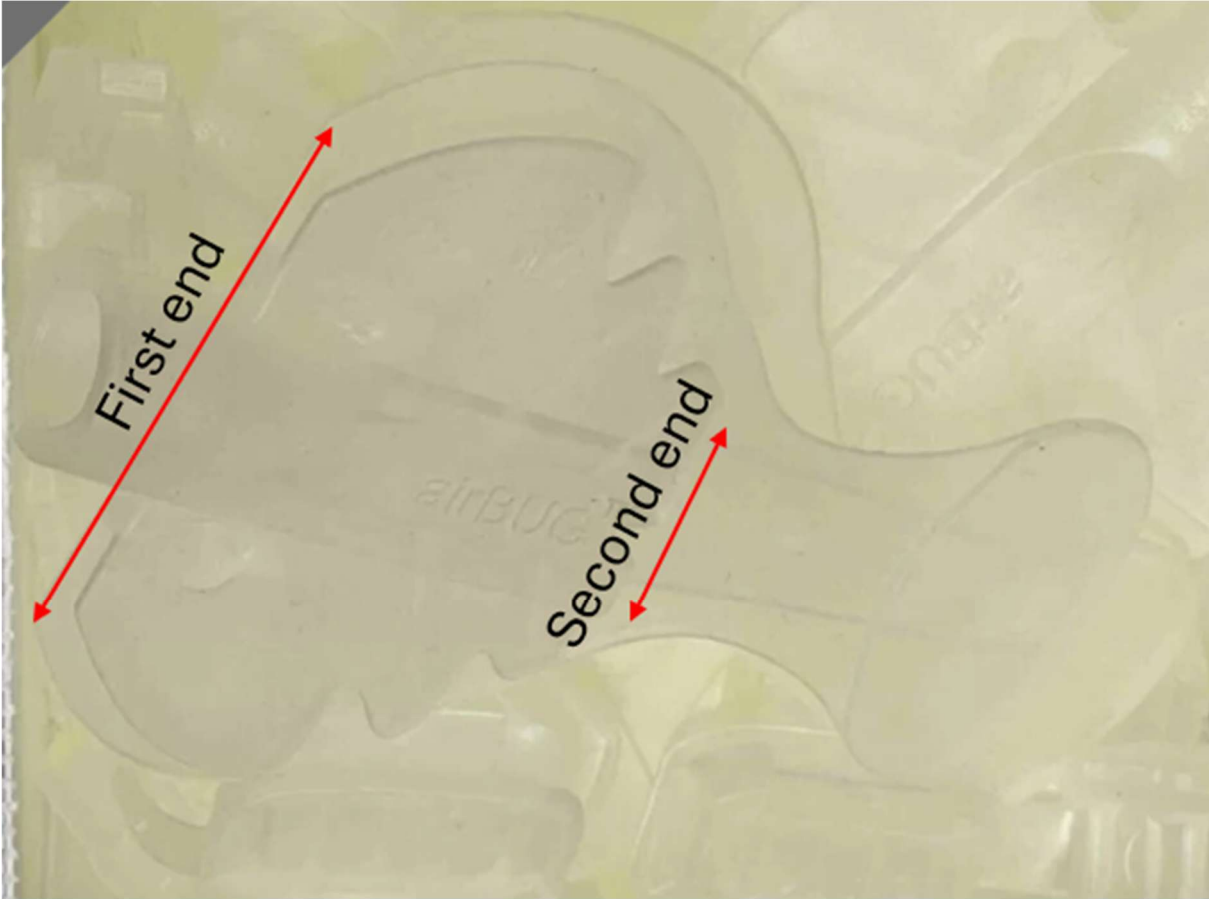
The '329 Patent	Exemplary Disclosures in the Prior Art
	 Hirsch and Isolite Mouthpiece teach the same:

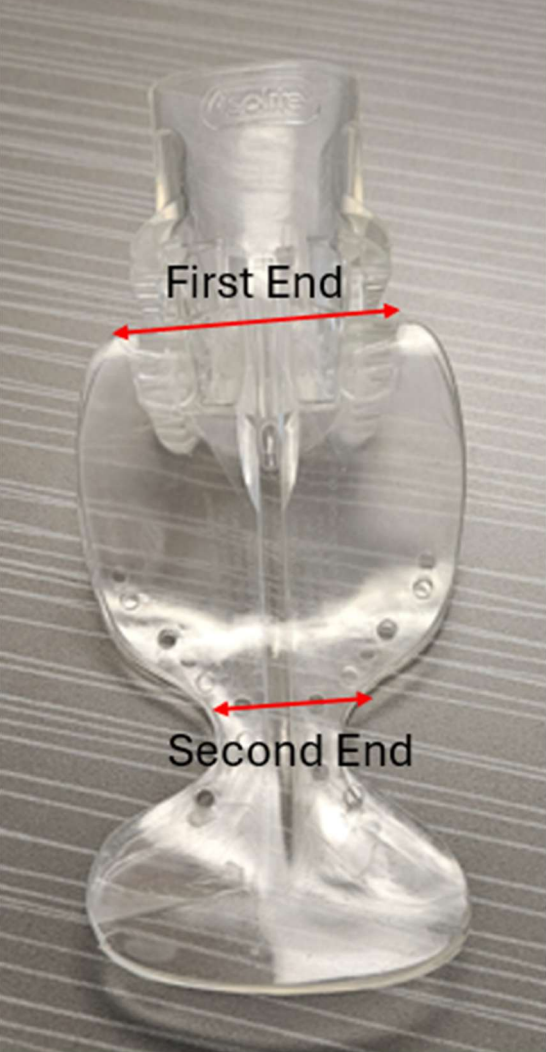
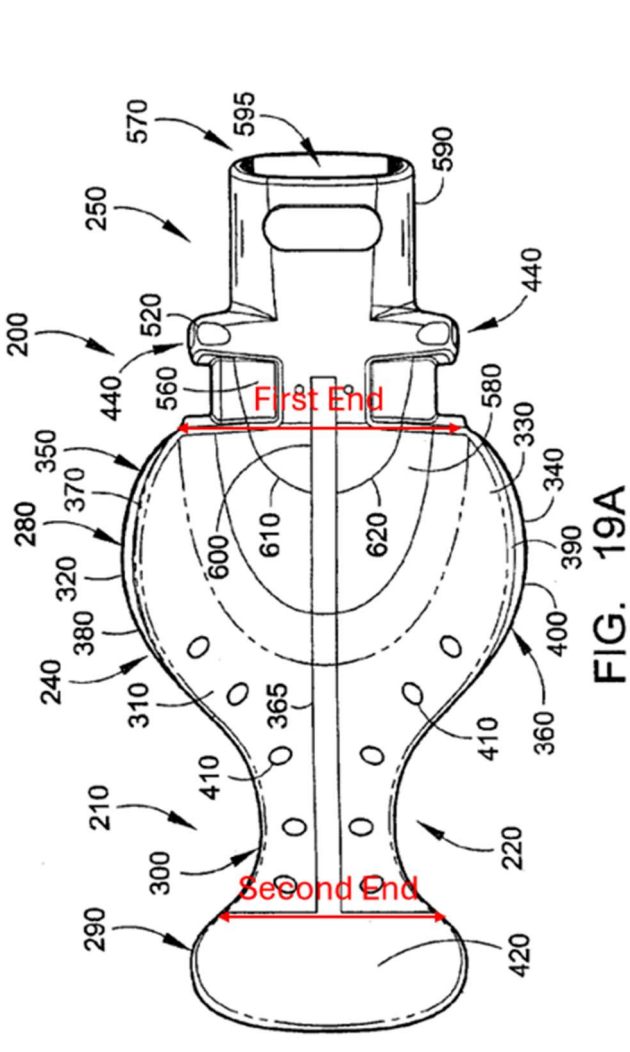
The '329 Patent	Exemplary Disclosures in the Prior Art
	  FIG. 19A
1[c] a first wall having a plurality of first edges and extending from the first end to the second end;	Black teaches that the first flap 340a includes an anterior layer 348b. Black, 14:25-30. A PHOSITA would consider this to be a first wall. FIG. 23A of Black shows that the anterior layer has a shape defined by multiple edges, and that the anterior layer 348b extends from the first end to the second end.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 23A AirBug Mouthpiece likewise teaches a first wall (notably, under Solmetex's construction for infringement, it does not appear to matter which wall is the first wall and which wall is considered the second wall):

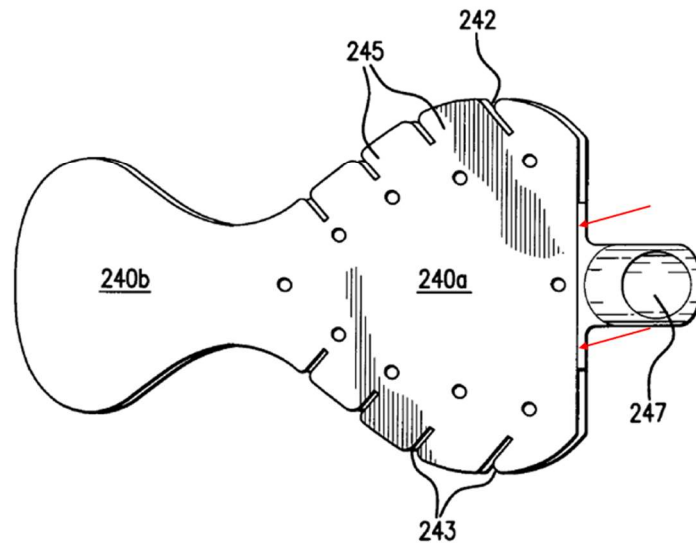
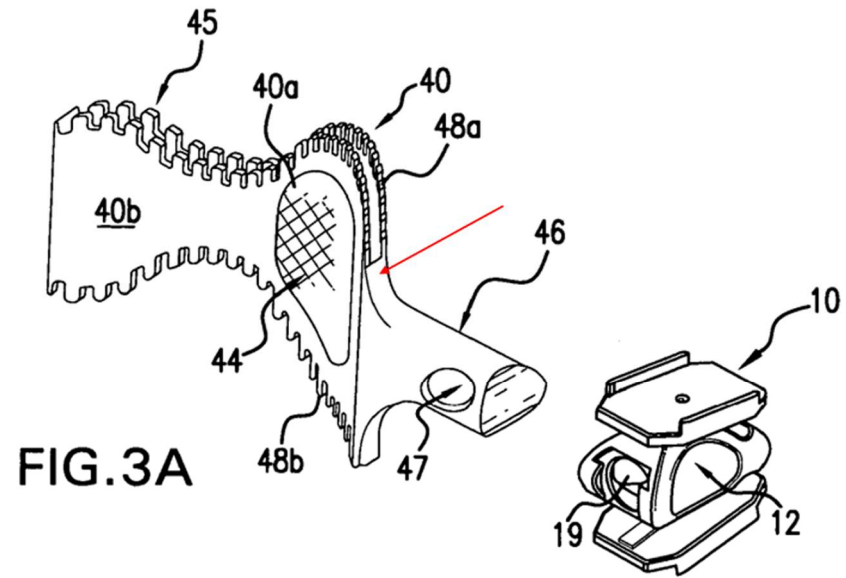
The '329 Patent	Exemplary Disclosures in the Prior Art
	
1[d] a second wall having a plurality of second edges and located at a distance from the first wall, the distance corresponding to an interior space between the first wall and the second wall, wherein the second wall also extends	Black teaches that the first flap 340a includes a posterior layer 348a. Black, 14:25-30. A PHOSITA would consider this to be a second wall. FIG. 23B of Black shows that the posterior layer 348a has a shape defined by multiple edges, and that the posterior layer 348a extends from the first end to the second end.

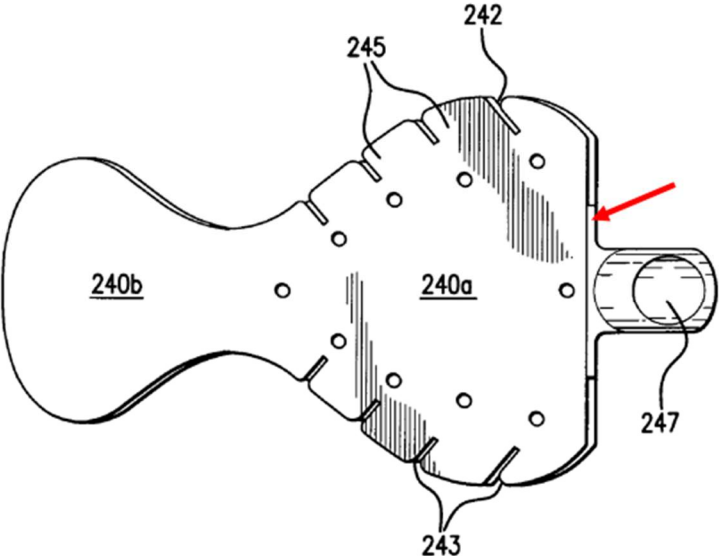
The '329 Patent	Exemplary Disclosures in the Prior Art
from the first end to the second end,	FIG.23B The posterior layer 348a is spaced apart from the anterior layer 348b by transverse walls 348c. Black, 14:25-30. FIG. 23C of Black shows an interior area between the posterior and anterior layers 348a, 348b, and FIG. 23A of Black show the channels 342, 343 created between the transverse walls 348c. Black, 14:30-63. The tongue shield aspirator 340 also has a longitudinal lumen that runs down the center of the mouthpiece and is fluidly connected to each channel 342, 343. Black, FIG. 3B, FIG. 23A, 14:21-25. Both the lumen and the channels 342, 343 are interior spaces between the posterior layer 348a and the anterior layer 348b. FIG.23C AirBug also discloses a “second wall having a plurality of second edges and located at a distance from the first wall, the distance corresponding to an interior space between the first wall and the second wall, wherein the second wall also extends from the first end to the second end”

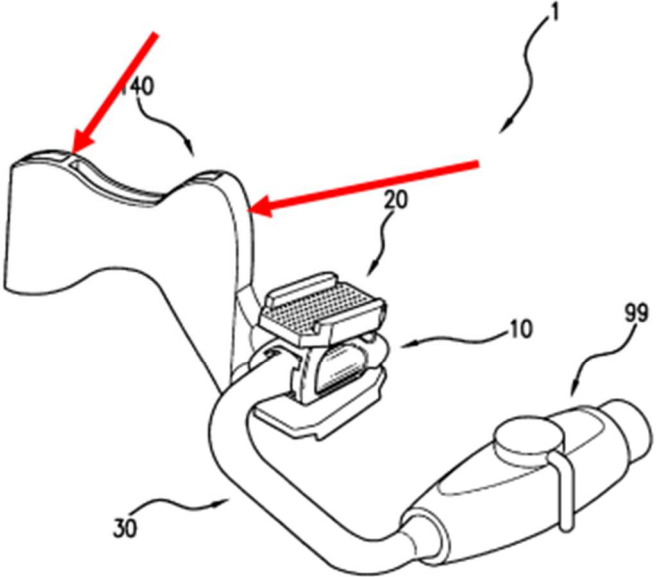
The '329 Patent	Exemplary Disclosures in the Prior Art
	 Hirsch and Isolite Mouthpiece teach the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	  FIG. 19A
1[e] a connecting wall that connects one of the first edges of the first wall to one of the second edges of the second wall across the distance	Black teaches that the first flap 340a has a connecting wall. Black, FIG. 23A, <i>see also</i> FIGS. 19, 1, 3A, 4C, 24D.

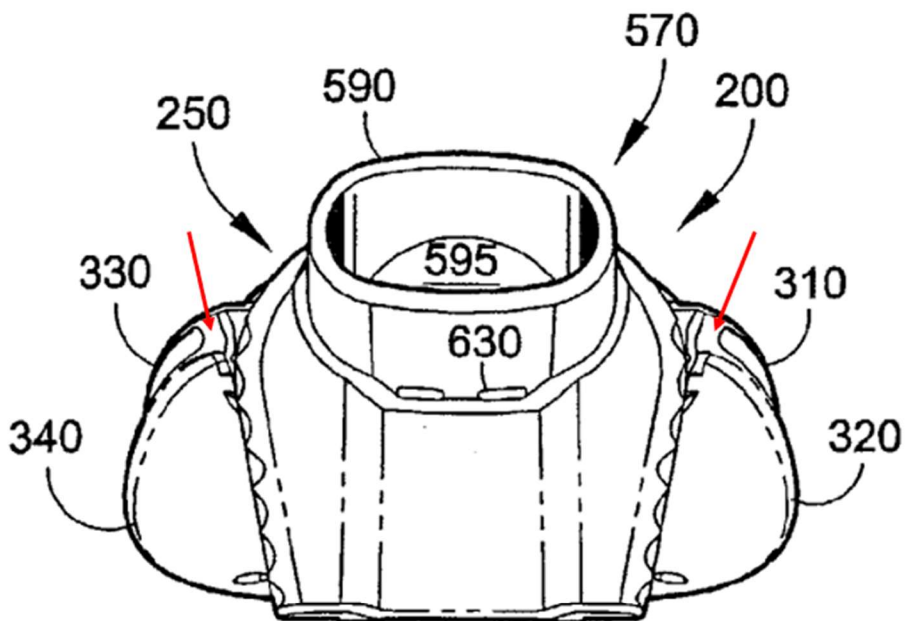
The '329 Patent	Exemplary Disclosures in the Prior Art
between the first wall and the second wall, and	FIG. 23A FIG. 19

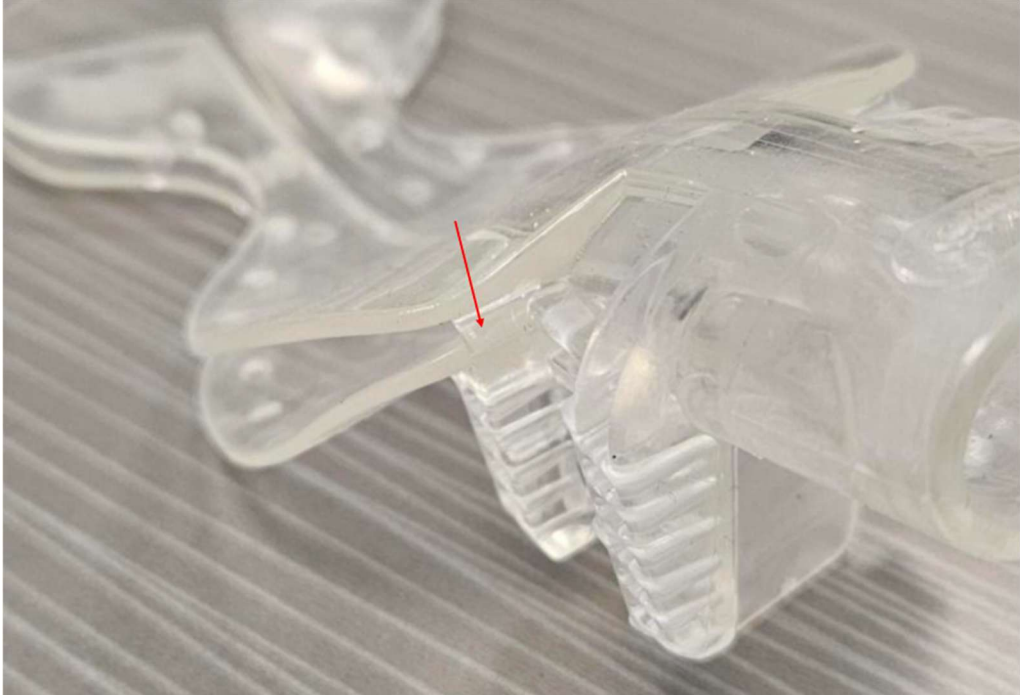


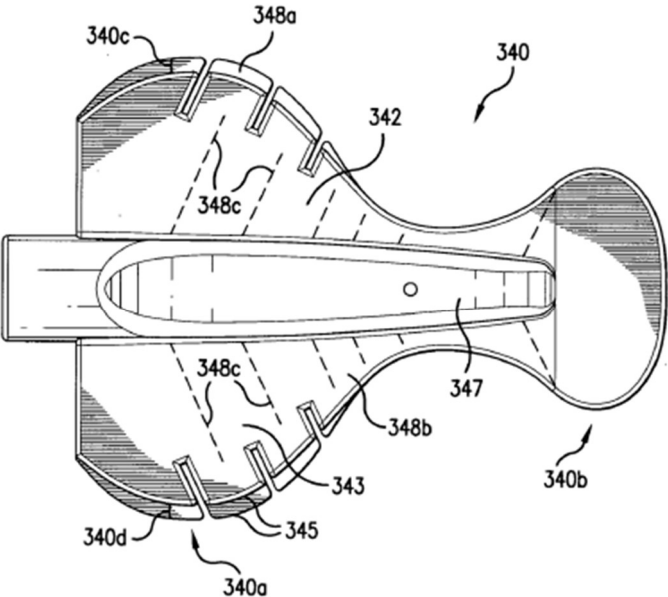
The '329 Patent	Exemplary Disclosures in the Prior Art
	For example, the tongue shield aspirator 240 includes a connecting wall formed near the “hollow neck 246”, which is the suction port of the tongue shield aspirator. FIG. 4C clearly shows a wall formed near the suction port and connecting the posterior flap and the anterior flap. It would have been obvious to include the connecting wall shown in FIG. 4C in the tongue shield aspirator 340 to provide additional structural integrity and more anti-collapse structure near the neck 346.  FIG.4C This wall connects an edge of the anterior flap to an edge of the posterior flap, exactly as claimed. Many other embodiments of Black show similar walls with different widths varying from partially expanding along an edge of the mouthpiece to extending across the entirety of an edge.

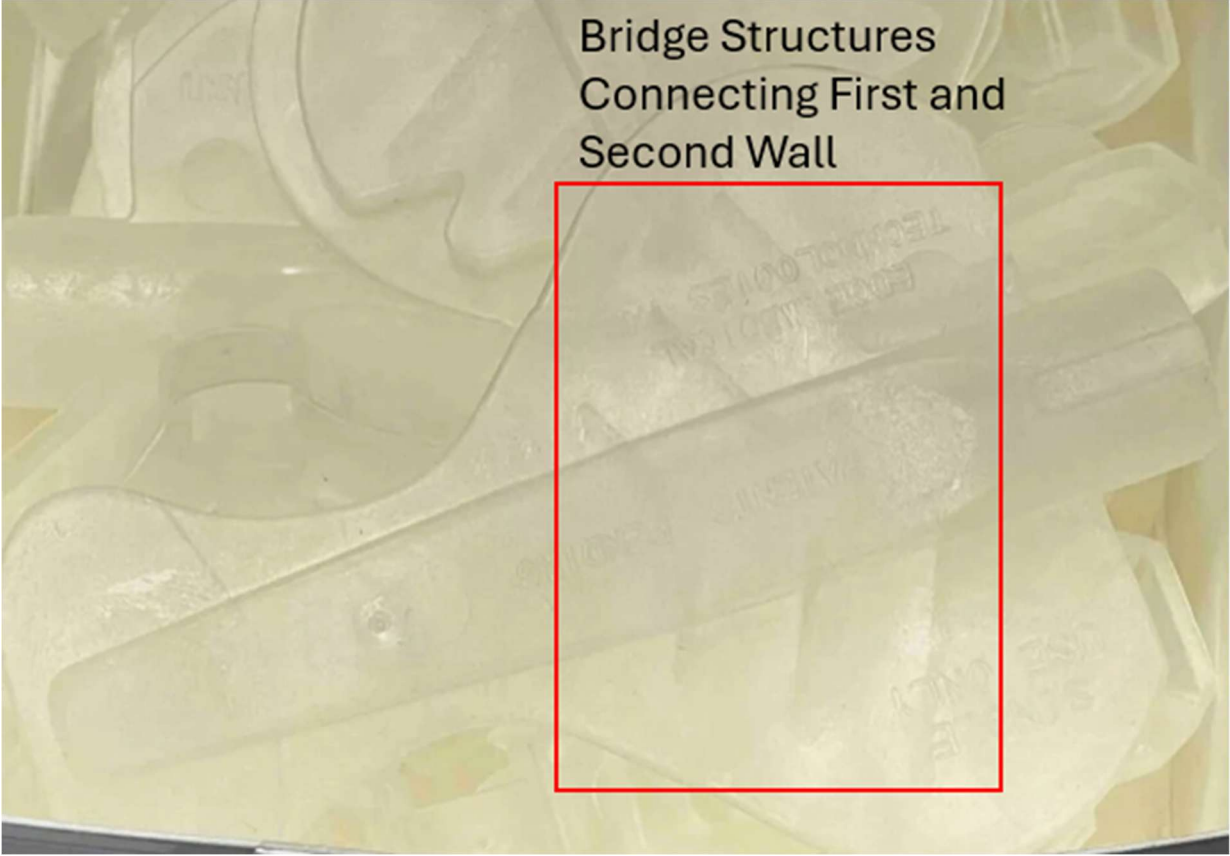
The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 1 To the extent that Solmetex argues that the embodiment shown in FIG. 4C does not connect an entire “edge”, it would have been obvious to extend the wall across the entire hollow neck side. Such a change would just be a change in the dimensions or proportions of the wall. MPEP 2144.04. Under Solmetex’s construction of a connecting wall, AirBug Mouthpiece discloses the same:

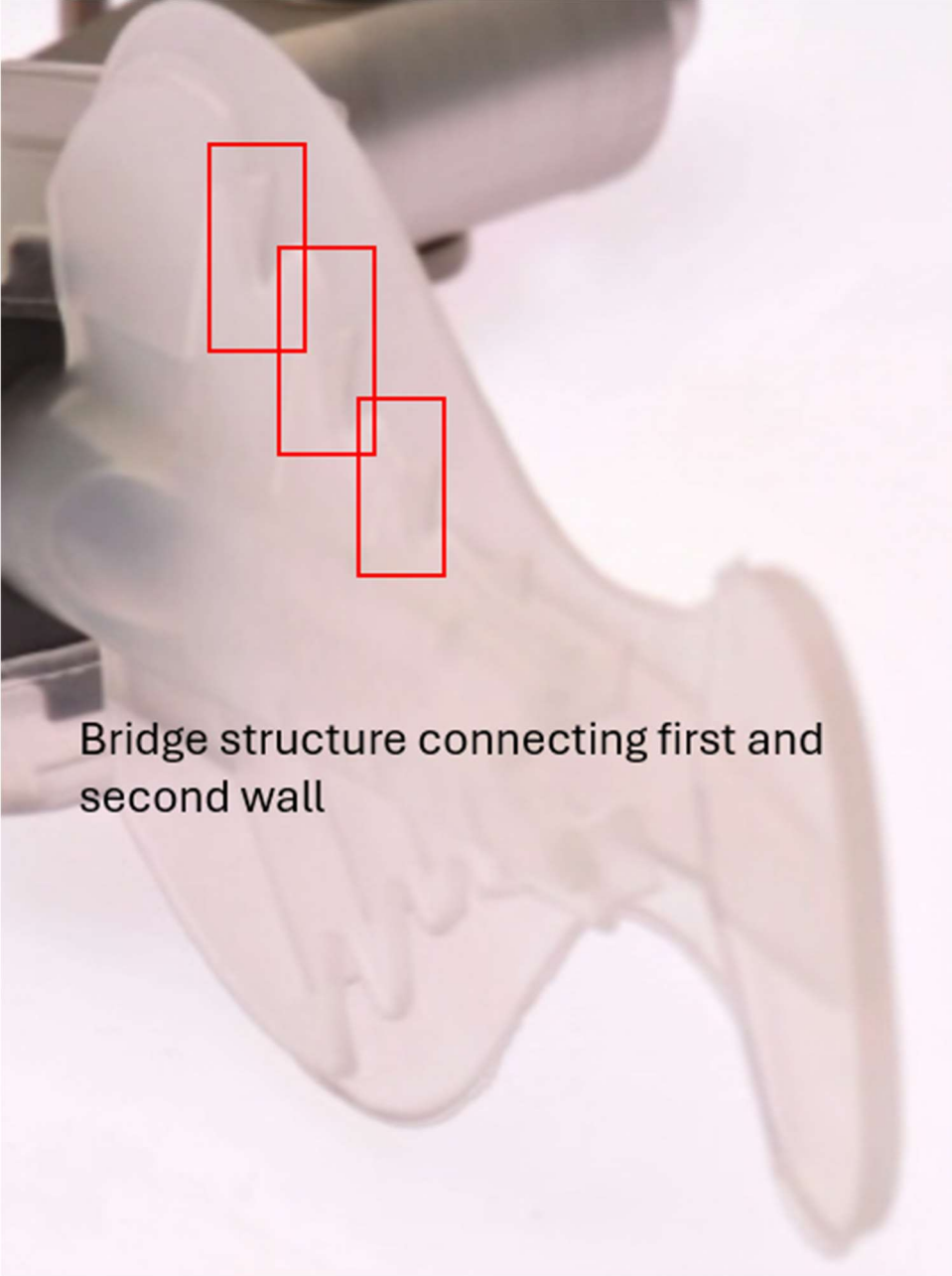
The '329 Patent	Exemplary Disclosures in the Prior Art
	To the extent that Solmetex argues that the embodiment shown in AirBug does not connect an entire “edge”, it would have been obvious to extend the wall across the entire hollow neck side. Such a change would just be a change in the dimensions or proportions of the wall. MPEP 2144.04. Both Hirsch and Isolite Mouthpiece likewise disclose a “a connecting wall that connects one of the first edges of the first wall to one of the second edges of the second wall across the distance between the first wall and the second wall:”

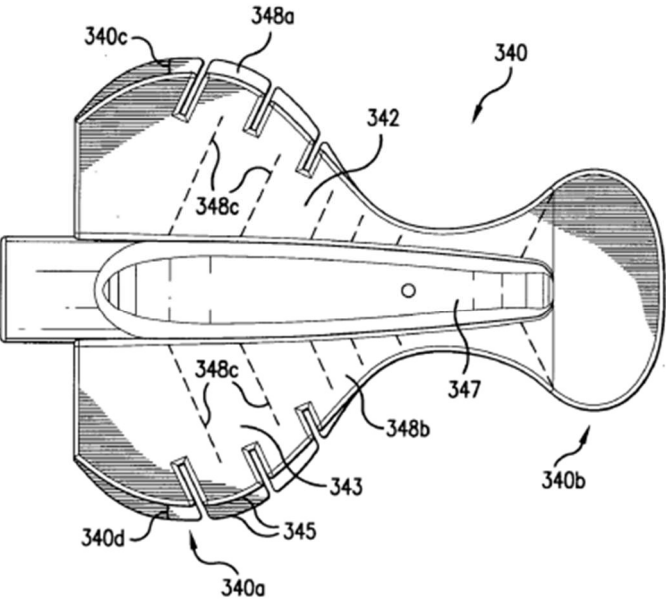
The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19D

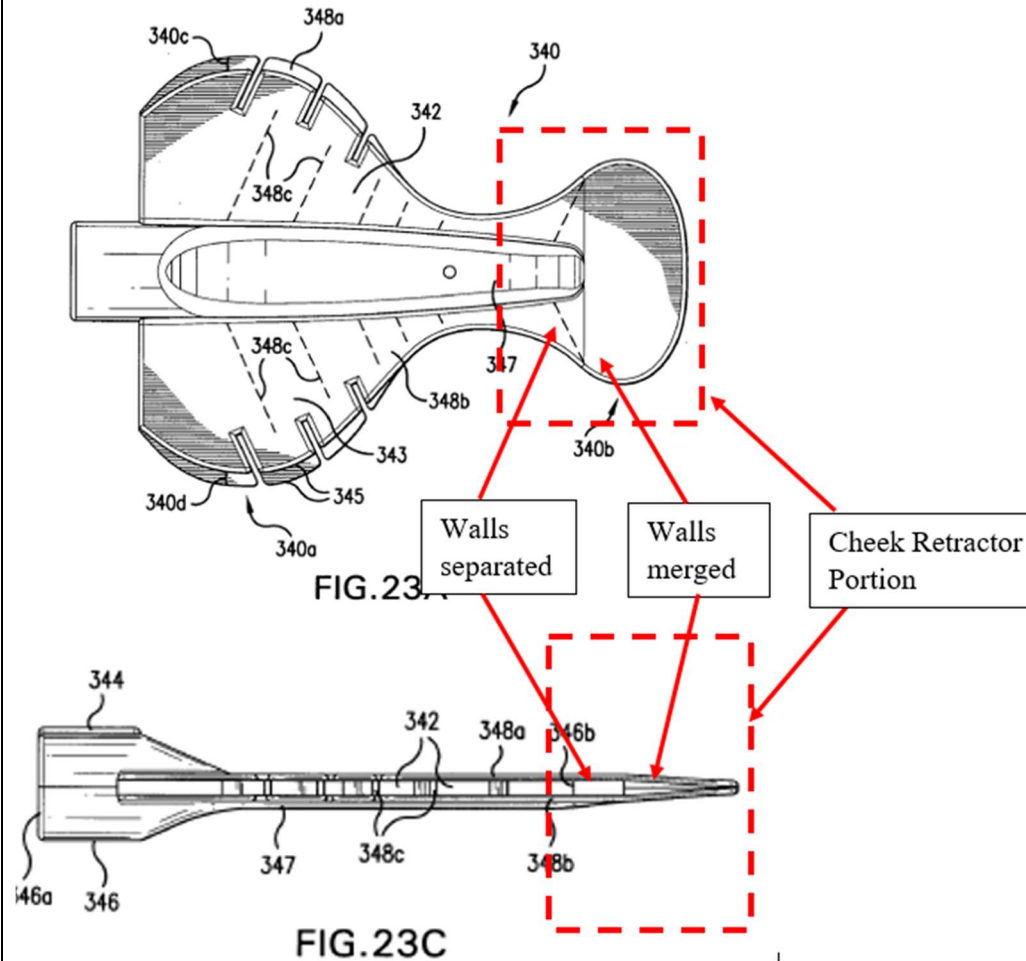
The '329 Patent	Exemplary Disclosures in the Prior Art
	
1[f] a bridge structure that includes a plurality of spaced protrusions protruding from an interior surface of the second wall, the bridge structure extending across the distance between the first wall and the second wall through the interior space towards the first wall; and	Black teaches transverse walls 348c spaced apart from each other to form channels 342 therebetween. Black, 14:21-47. Black explains that these transverse walls form conduits for debris and fluid, “thereby allowing for simultaneous aspiration of debris and fluid from top (palate of mouth) to bottom (floor of mouth), and through the passageway, during dental procedures.” Black, 14:38-47. Black also explains that the transverse walls prevent collapse under suction. Black, 14:21-47; The transverse walls 348c are a bridge structure, as claimed. Indeed, the Examiner also found that Black taught the claimed bridge structure. <i>Id.</i> The transverse walls extend from an interior surface of the posterior flap 348a and to the anterior flap 348b (transverse walls shown dashed). Black, 14:21-47. Thus, the transverse walls are protrusions. <i>Id.</i>

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 23A The AirBug Mouthpiece discloses the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	Bridge Structures Connecting First and Second Wall 

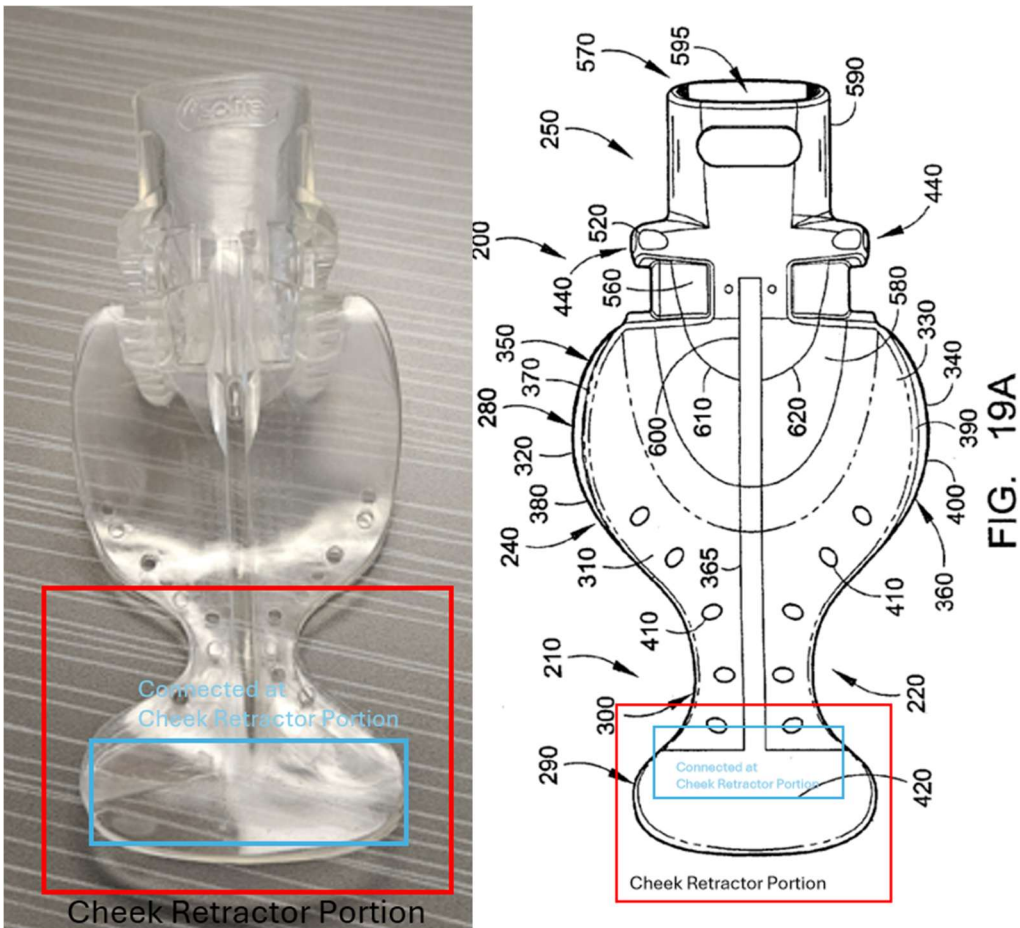
The '329 Patent	Exemplary Disclosures in the Prior Art
	 Bridge structure connecting first and second wall

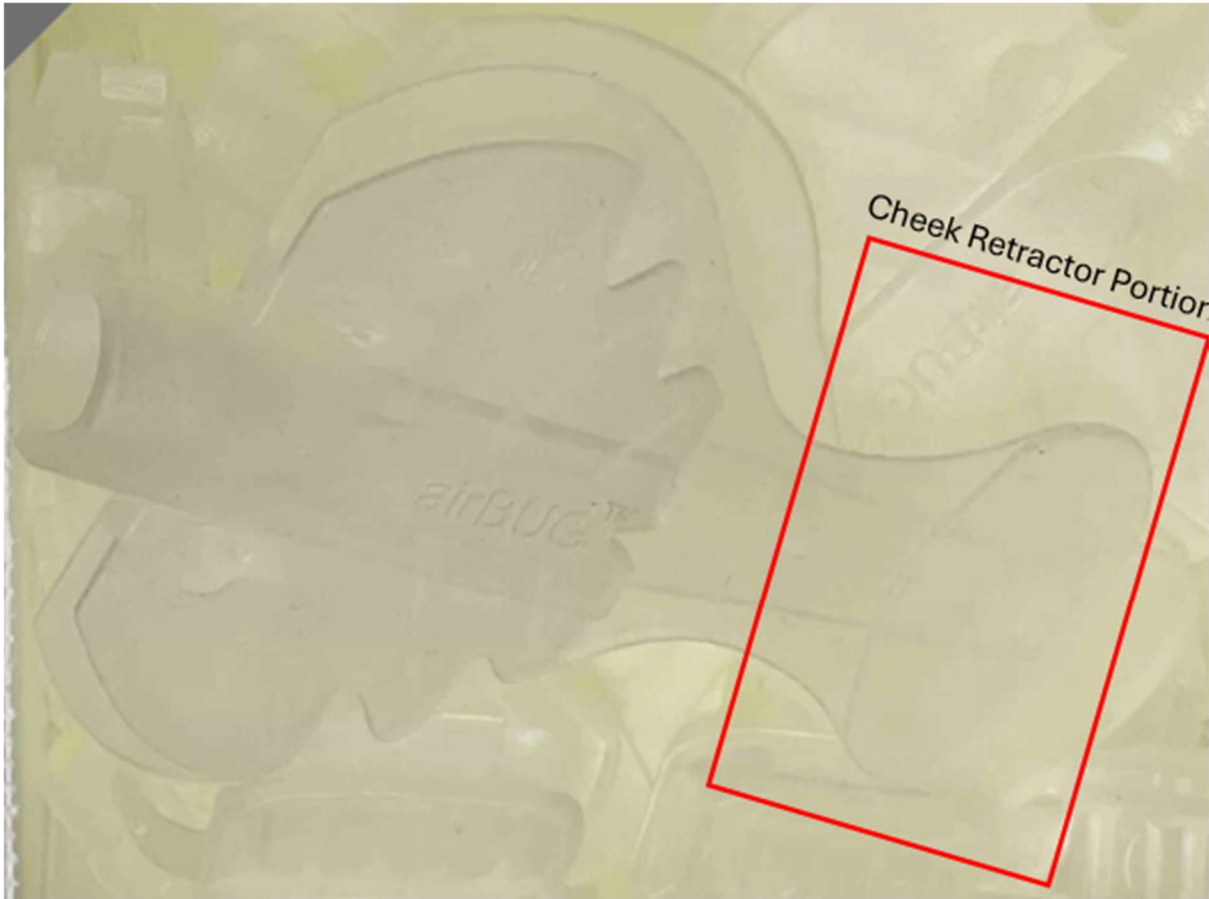
The '329 Patent	Exemplary Disclosures in the Prior Art
1[g] a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end, the first wall and the second wall of the main body transitioning into and being connected in the cheek-retractor portion to form the cheek-retractor portion, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-retractor portion before being connected at the cheek-retractor portion.	Black teaches a second flap 340b that functions as a cheek retractor and is formed on the opposite side of the tongue shield aspirator 340 from the neck 346. Black, 14:5-9, FIG. 23A. As shown in FIG. 23A the second flap 340b is connected to, and expands outwardly away from, the second end of the first flap 340a. 
	FIG.23A FIG. 23C of Black illustrates that both the posterior and anterior layers 348b, 348a transition into the second flap 340b (cheek retractor). For a short distance after the narrowest portion of the isthmus (349) the layers 348a, 348b remain separated from one another before merging together to form the cheek retractor. Annotated FIG. 23C (below) illustrates that the posterior layer 348a and the anterior layer 348b are separated in the cheek retractor portion (dashed area) and then merge together in the dashed area.



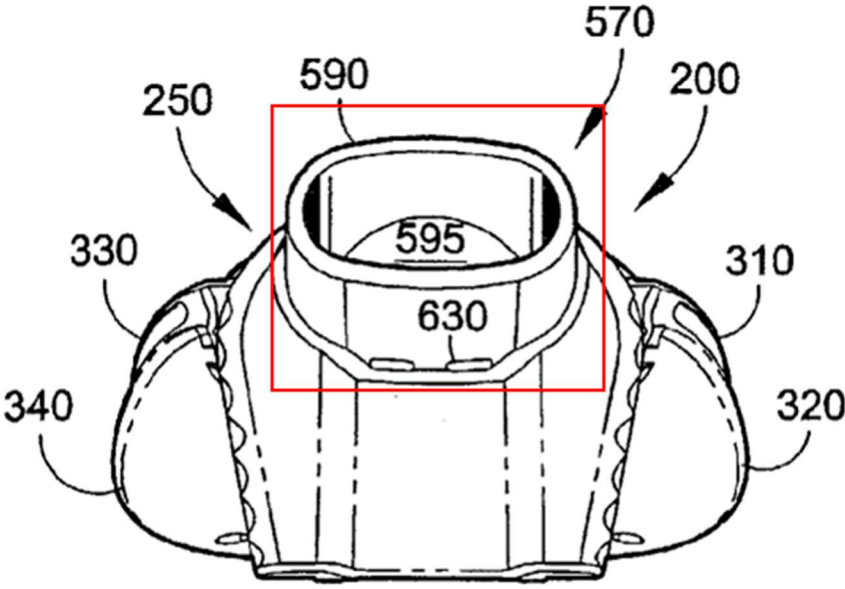
Black explains: “In embodiments of the invention, the upper opening defined by the space between the top edges of the anterior and posterior layers, and the lower opening defined by the space between the bottom edges of the anterior and posterior layers may extend through the transition section 349 (as shown, e.g., in FIG. 23C) *as well as at least a portion of the distal flap 340b.*” Black, 15:14-20. This is exactly how the cheek retractor portion is claimed in claim 1.

To the extent that Solmetex contests that Black discloses 1[g], such a limitation would be obvious in view of one or more of the skill of a PHOSITA, Hirsch, and the Isolite Mouthpiece.

The '329 Patent	Exemplary Disclosures in the Prior Art
	Hirsch and the Isolite Mouthpiece both teach “a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end, the first wall and the second wall of the main body portion transitioning into and being connected in the cheek-retractor portion to form the cheek-retractor portion, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-retractor portion before being connected at the cheek-retractor portion:”  It would have been obvious for a PHOSITA to make such a change to connect at the cheek retractor to improve suction, stability, lighting, and increase the areas of suction.

The '329 Patent	Exemplary Disclosures in the Prior Art
	AirBug in combination with Black, Hirsch, or Isolite Mouthpiece also teach “a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end, the first wall and the second wall of the main body transitioning into and being connected in the cheek-retractor portion to form the cheek-retractor portion, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-retractor portion before being connected at the cheek-retractor portion:”  As discussed above, to the extent that Solmetex disputes that AirBug discloses limitation 1[g], Black, Hirsch, and the Isolite Mouthpiece “also teach “a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end, the first wall and the second wall of

The '329 Patent	Exemplary Disclosures in the Prior Art
	the main body transitioning into and being connected in the cheek-retractor portion to form the cheek-retractor portion, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-retractor portion before being connected at the cheek-retractor portion.” As further discussed above, it would have been obvious for a PHOSITA to make such a change to connect at the cheek retractor to improve suction, stability, lighting, and increase the areas of suction.
4 The mouthpiece of claim 1, further comprising a suction connector extending from the first end of the main body, wherein an evacuation conduit within the suction connector is in communication with the interior space between the first wall and the second wall.	Black teaches a hollow neck 346 formed on one end of the tongue shield aspirator 340 that connects the aspirator 340 to an evacuation tube, which is a vacuum source (HVE valve) that connects to the channels in the tongue shield aspirator. Black, Abstract, 1:62-2:7, 10:18-33, 15:21-51, 16:1-3, FIGS. 23C, 24D. Black also teaches that the neck 346 (suction connector) has a conduit through it that is in communication with the channels 342, 343 of the tongue shield aspirator 340. Black, 15:21-35 AirBug, Thirsty, and Isolite Mouthpiece each disclose the same: 

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19D 
5 The mouthpiece of claim 4, wherein a wall thickness of the suction connector is greater than a wall thickness of the first wall or the second wall of the main body.	Black clearly illustrates that the neck 446 is much thicker than the posterior or anterior layers 448a, 448b. FIG. 24D

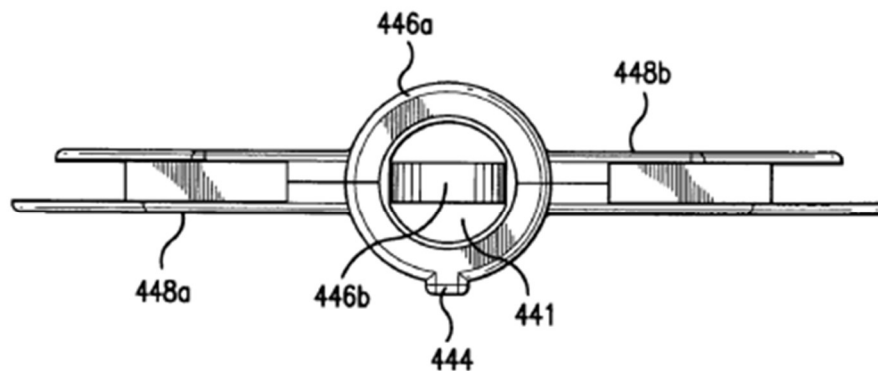
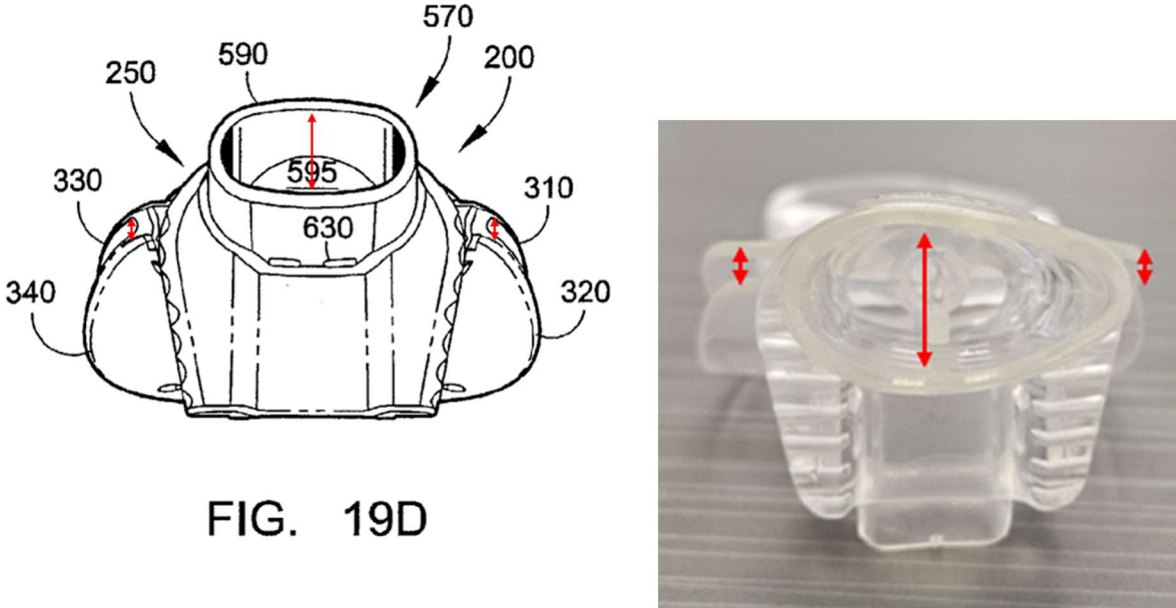


FIG. 24D

AirBug, Hirsch, and Isolite Mouthpiece each disclose the same:



The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19D
6 The mouthpiece of claim 4, wherein the suction connector further includes a cutout configured to interlock with a corresponding protrusion of a vacuum adapter, wherein a shape of the cutout follows a shape of a shield logo.	Black teaches a suction connector 446 with cutout 441 configured to interlock with corresponding protrusion 332 of a vacuum adapter, wherein a shape of the cutout follows a shape of a shield logo.

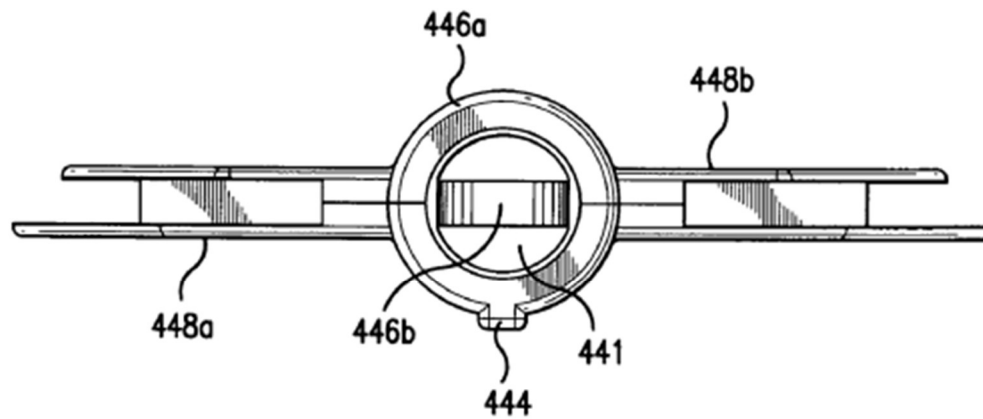


FIG. 24D

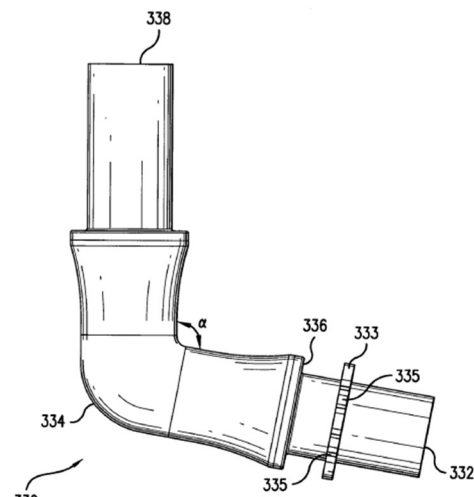
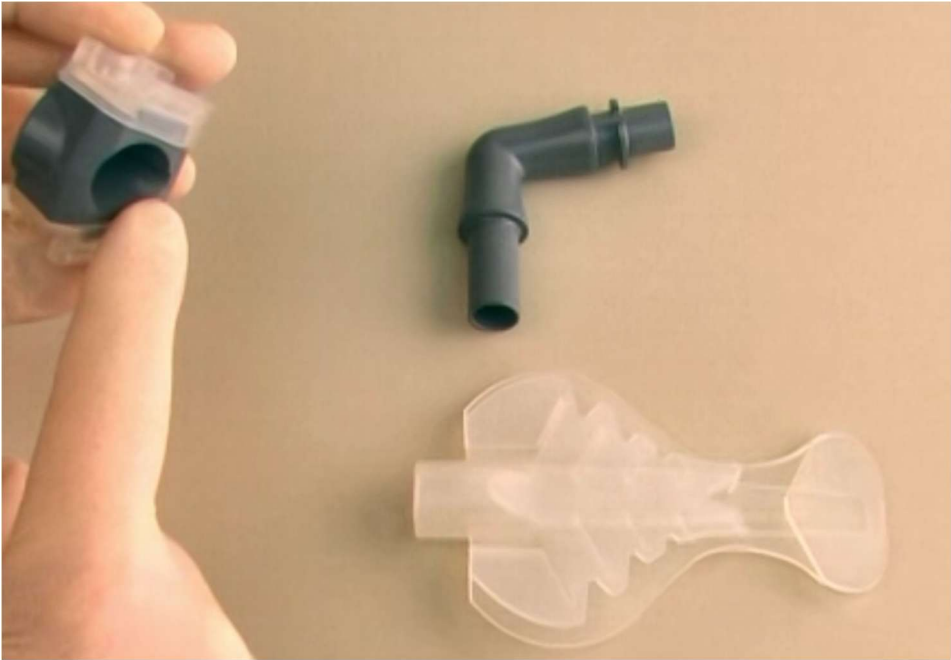
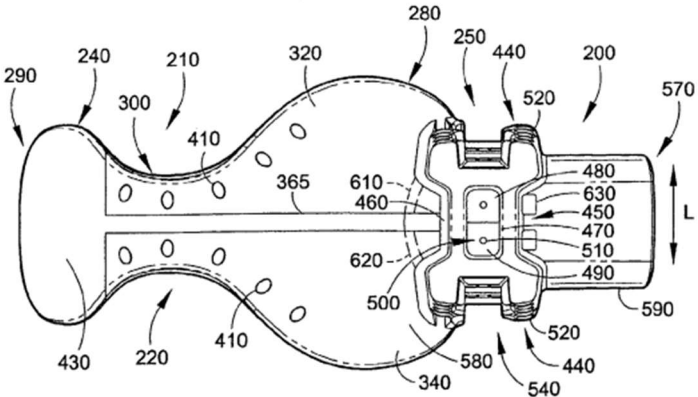


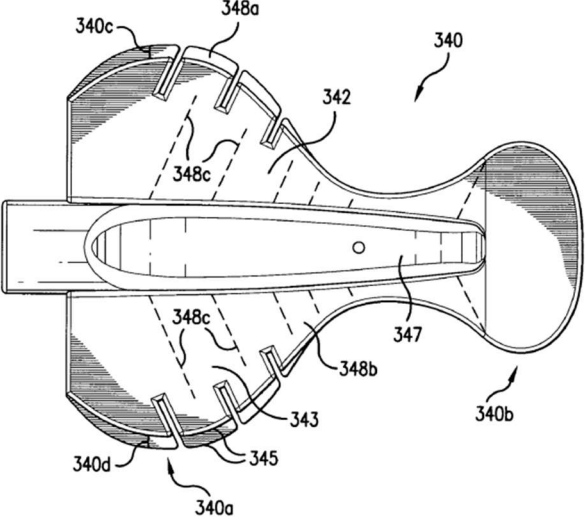
FIG. 22A

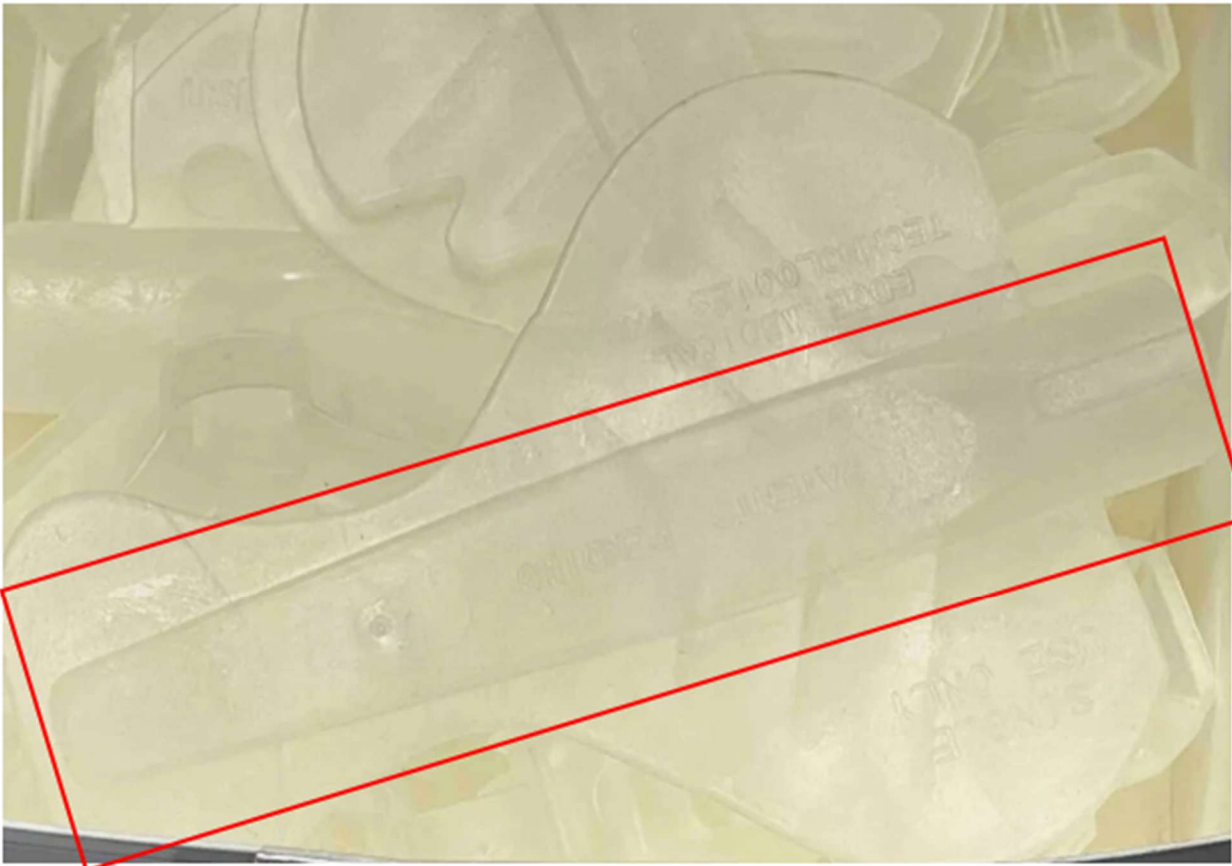
The '329 Patent	Exemplary Disclosures in the Prior Art
	Further, Black teaches a “lock-and-key locking mechanism” that interlocks the bite member 310 and the evacuation tube 330. Black, 13:16-67. “[T]he lock-and-key mechanism ensures that the evacuation tube [i.e., vacuum source] will not detach from the bite member during use...” Black, 13:57-59. This is exactly, or at worst an obvious variation of, what claim 6 describes. AirBug Mouthpiece discloses the same:  To the extent that Solmetex contends that neither Black nor AirBug disclose a shield shaped cutout, Ascentcare notes that shields are commonly circular, and Solmetex does not specify any specific shield in its specification.

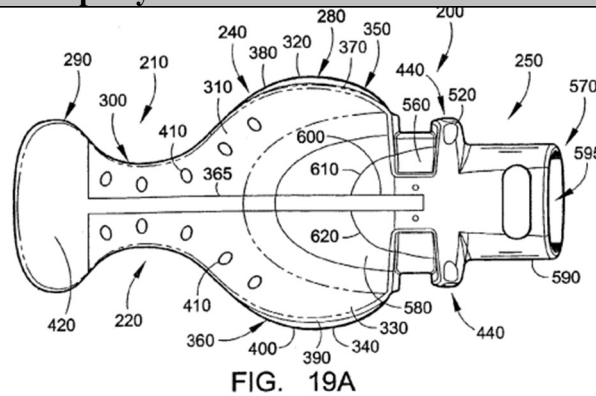
The '329 Patent	Exemplary Disclosures in the Prior Art
	If Solmetex argues that Black or AirBug does not teach a locking mechanism of the suction connector, specifically, it would be obvious to include a locking mechanism on the suction connector in view of Hirsch. Hirsch discloses a connection section 570 (suction connector) that extends from the retractor 240 and attaches to the vacuum-only adapter 230 to deliver suction to the intraoral device. Hirsch, ¶ 89, FIG. 19E. The connection section 570 includes a tube 590 having slots 630 that retain corresponding retention barbs on the vacuum-only adapter 230. Hirsch, ¶ 90, FIG. 19E. The slots are 630 a locking mechanism, in the form of a hole (i.e. cut out), formed on the suction connector of a mouthpiece and configured to receive corresponding protrusions from a vacuum adapter.  FIG. 19E Isolite teaches the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	Park teaches the same:

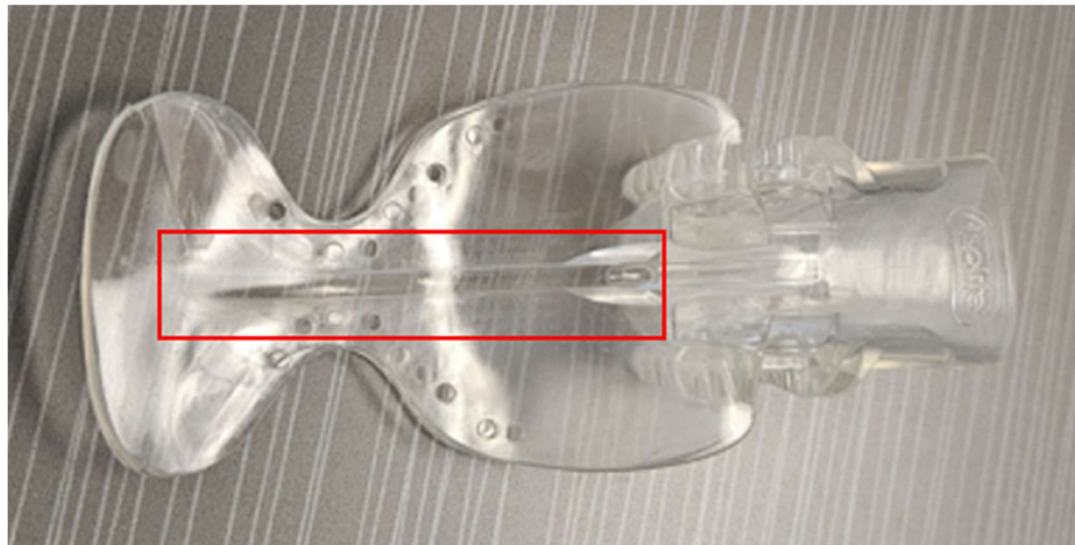
The '329 Patent	Exemplary Disclosures in the Prior Art
	It would have been obvious to a PHOSITA to modify Black or AirBug’s suction connector to include Hirsch, Isolite, or Park’s slots 630 at least to make a more secure connection between the mouthpiece and vacuum source. Black, 16:1-7. In fact, Black points out how important it is to have a secure connection to the vacuum source. Black, 13:57-59. Holes formed on the suction connector that accept projections on the vacuum tube are merely an obvious variant of Black’s lock-and-key mechanism, since it is just choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success. MPEP 2143(I)(E). To the extent that Solmetex contends that none of the references disclose a “shield shape,” Ascentcare further notes that the USPTO has already noted that “having a particular shape for the cutout is a matter of choice in which a person of ordinary skill in the art would have found obvious by the absent [<i>sic</i>] of persuasive evidence in the present application, that the particular configuration of the claimed shape of the cutout is significant.” .” <i>See</i> Prosecution History ’329 Patent at Office Action 9/23/2023, page 11, ¶ 32. Changing the slots 630 from rectangular to a “shield” shape is obvious. MPEP 2144.04(IV)(B). The Supreme Court has likewise found modifications on one system to fit another on the market to be obvious to a PHOSITA. <i>KSR Int’l Co. v. Teleflex Inc.</i>, 550 U.S. 398, 424, 127 S. Ct. 1727, 1744, 167 L. Ed. 2d 705 (2007) (“The

The '329 Patent	Exemplary Disclosures in the Prior Art
	interaction of multiple components means that changing one component often requires the others to be modified as well. Technological developments made it clear that engines using computer-controlled throttles would become standard. As a result, designers might have decided to design new pedals from scratch; but they also would have had reason to make pre-existing pedals work with the new engines. Indeed, upgrading its own pre-existing model led KSR to design the pedal now accused of infringing the Engelgau patent.”). Accordingly, to the extent that Black or AirBug do not disclose a shield shaped cutout, it would have been obvious to modify Black or AirBug in view of Hirsch, Isolite, or Park to include a shield shaped cutout.
7 The mouthpiece of claim 1, further comprising a stability bar corresponding to a thickened area of the main body, the stability bar extending along a longitudinal axis of the main body between the first wall and the second wall, wherein a thickness of the stability bar reinforces at least a portion of the main body.	Black teaches that the tongue shield aspirator 340 includes a longitudinal stiffener 347 to prevent kinking when the aspirator 340 is flexed and/or bent for placement within the oral cavity. Black, 15:63-16:37, FIG. 23A. Put another way, the stiffener 347 reinforces at least a portion of the main body — particularly, the cheek retractor to help provide the necessary force to retract cheek tissue. The stiffener 347 extends along a longitudinal axis of the main body and corresponds to a thickened area of the main body. Black, FIG. 23A. Black’s stiffener 347 extends from the exterior surface of the anterior layer 348b, and not between the first and second walls.  FIG. 23A AirBug Mouthpiece teaches the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 However, to the extent that Solmetex contends that neither Black nor AirBug disclose a “stability bar corresponding to a thickened area of the main body, the stability bar extending along a longitudinal axis of the main body between the first wall and the second wall, wherein a thickness of the stability bar reinforces at least a portion of the main body,” Hirsh teaches a spine 365 extending (i) along the longitudinal axis of the mouthpiece and (ii) between the first and second walls. Hirsch, ¶ 78. The spine 365 reinforces the cheek retractor to help retract cheek tissue.

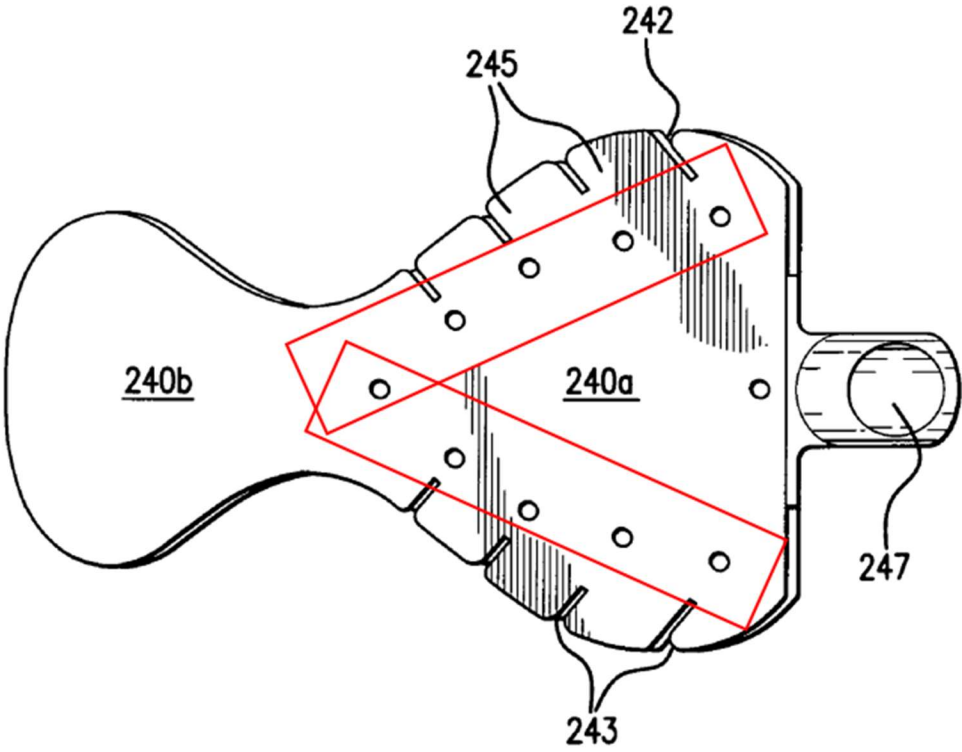


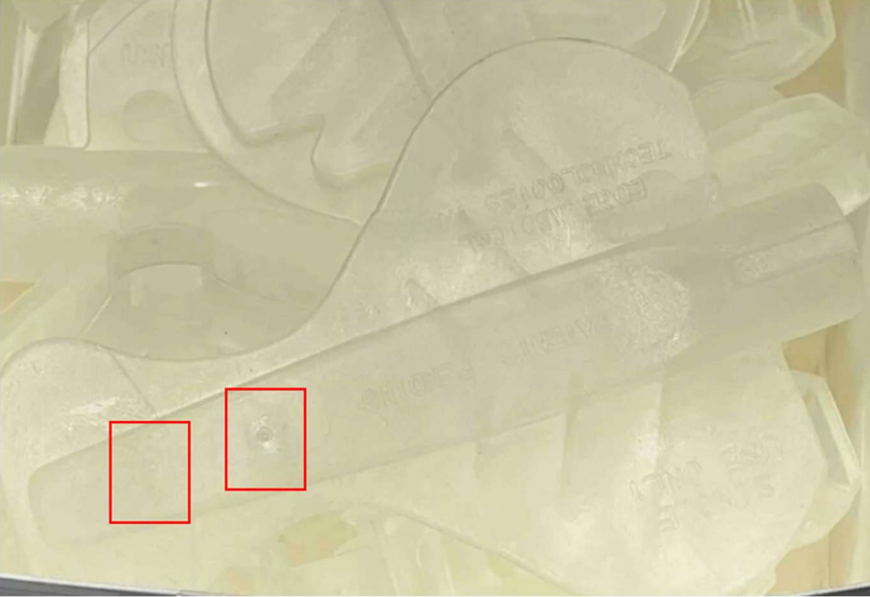
Isolite Mouthpiece teaches the same stability bar:



A PHOSITA would have been motivated to modify the tongue shield aspirator 340 of Black or AirBug to include the spine 365 of Hirsch to provide added anti-collapse rigidity and increased cheek retraction force to the tongue shield aspirator 340 of Black. Black, 15:63-67. It would be obvious to a PHOSITA that the spine 365 could replace the transverse walls 348 that make up the longitudinal lumen extending through the mouthpiece and would

The '329 Patent	Exemplary Disclosures in the Prior Art
	strengthen those walls near the transition section 349 leading up to the second flap 340b (cheek retractor), thereby providing increased rigidity and cheek retraction force to push cheek tissue away from the procedure area. Black, 14:1-20. Adding the spine 365 of Hirsch or Isolite to the tongue shield aspirator 340 of Black or AirBug could also simply be seen as moving the stiffener 347 to extend from an inner surface of the anterior layer 348b (where it would extend towards the posterior layer) and not an exterior surface.
9[a] A mouthpiece for use with a suction system in a dental procedure, the mouthpiece comprising:	To the extent that the preamble is limiting, each prior art reference relied upon herein are mouthpieces for use with a suction system in a dental procedure.
9[b] a main body portion having a first end and a second end, the main body portion including:	<i>See</i> Limitation 1[b].
9[c] a first wall having a first edge and a second edge extending from the first end of the main body portion towards the second end of the main body portion, the first wall including a first plurality of perforations formed adjacent to and extending along a portion of the first edge and a second plurality of perforations formed adjacent to and extending along a portion of the second edge,	Black teaches a tongue shield aspirator having first and second pluralities of holes (perforations) formed along first and second edges of the first wall, respectively. Black, FIG. 4C.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 AirBug Mouthpiece discloses the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex disagrees that the perforations are sufficient in quantity or in the proper location, it would have been obvious to a PHOSITA, for example, adding more perforations, as it would be obvious to a PHOSITA, as a mere duplication of parts. MPEP 2144.04(VI)(B). Adding more perforations to the tongue shield aspirator of Black would improve suction and the area of suction. Alternatively, it would have been obvious to combine AirBug with one or two of the below: A PHOSITA have been motivated to modify the posterior layer 348a of Black or AirBug to include the evacuation holes 410 improve the suction through the tongue shield aspirator 340, and allow for suction through the posterior wall in case fluid escaped the barrier created by the tongue shield aspirator. Hirsch, ¶ 71. To the extent that Solmetex contends that Black and AirBug do not disclose the perforations on a particular wall, it would have been obvious to include perforations on the anterior layer of Black in view of Hirsch, Isolite Mouthpiece, or Park, as Hirsch and Isolite Mouthpiece have perforations on both the anterior and posterior flaps. Including additional perforations would improve suction, area of suction, and therefore, patient comfort.

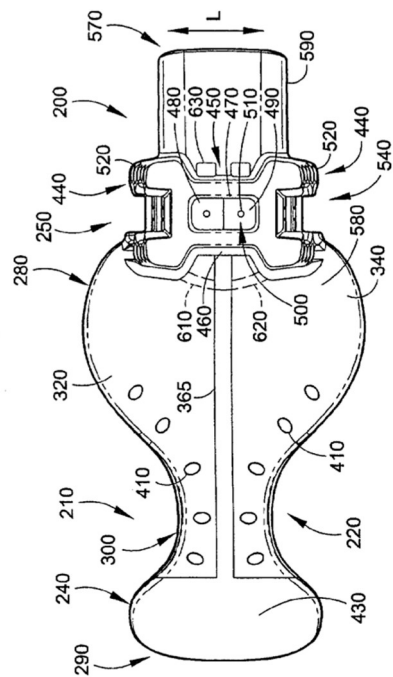


FIG. 19E

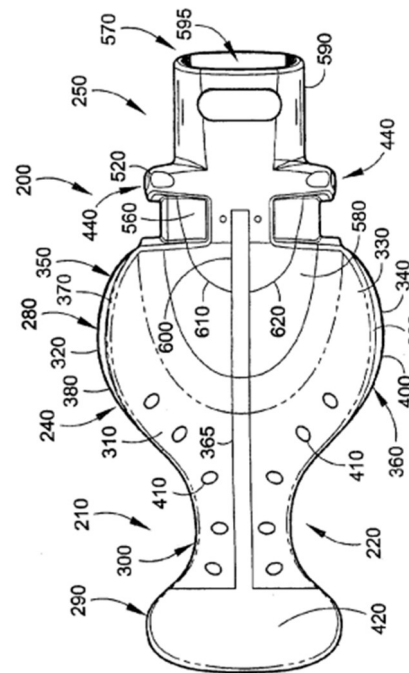
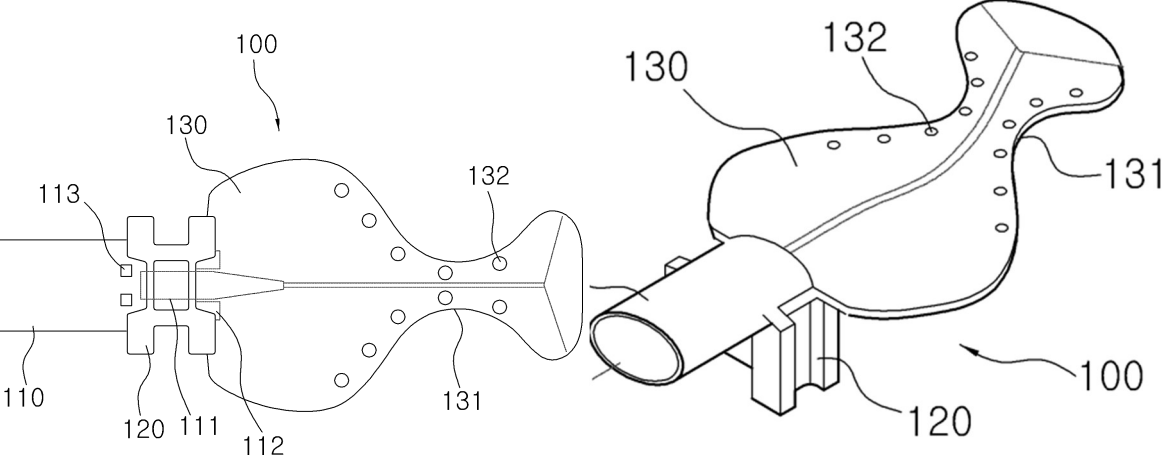
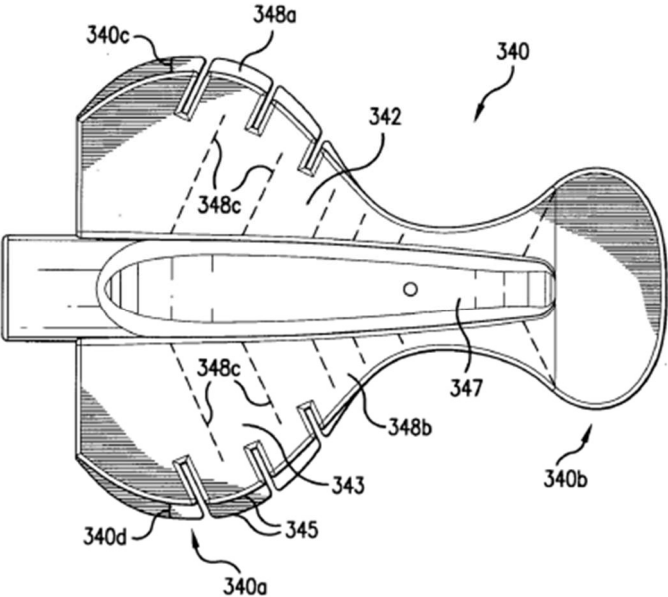


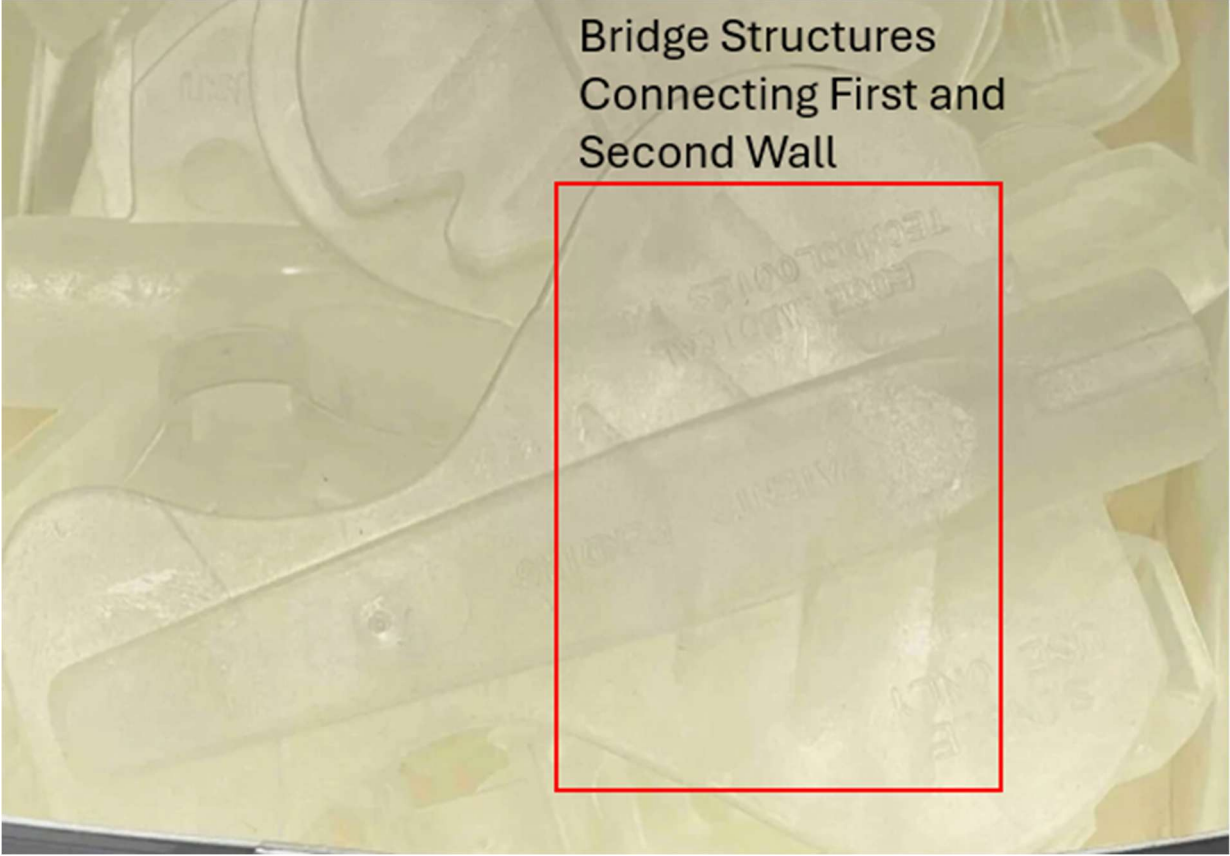
FIG. 19A

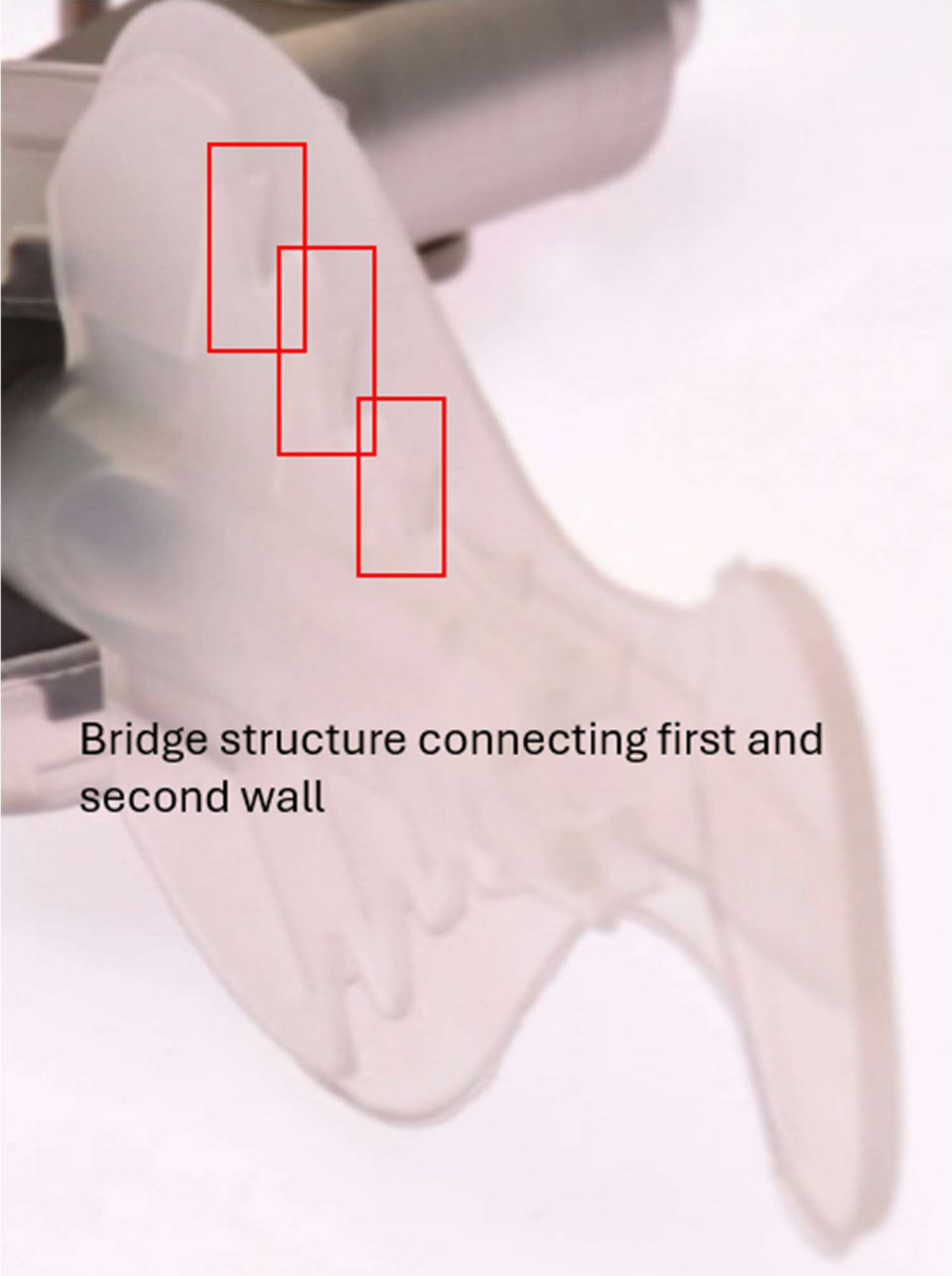
Isolite Mouthpiece discloses the same:

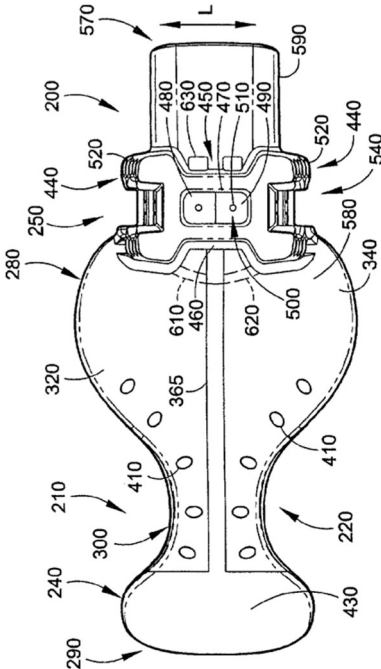
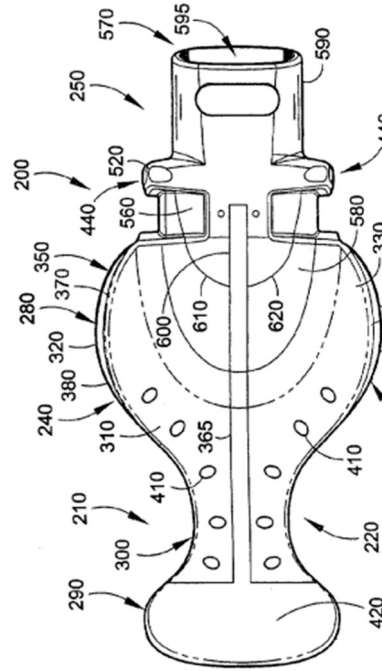


The '329 Patent	Exemplary Disclosures in the Prior Art
	Park also discloses the same: 
9[d] a second wall having a third edge and a fourth edge extending from the first end of the main body portion towards the second end of the main body portion, the second wall including a third plurality of perforations formed adjacent to and extending along a portion of the third edge, and a fourth plurality of perforations formed adjacent to and extending along a portion of the fourth edge, wherein the second wall further includes a plurality of protrusions	As discussed above in limitation 1[f], Black and AirBug disclose “wherein the second wall further includes a plurality of protrusions extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs:”

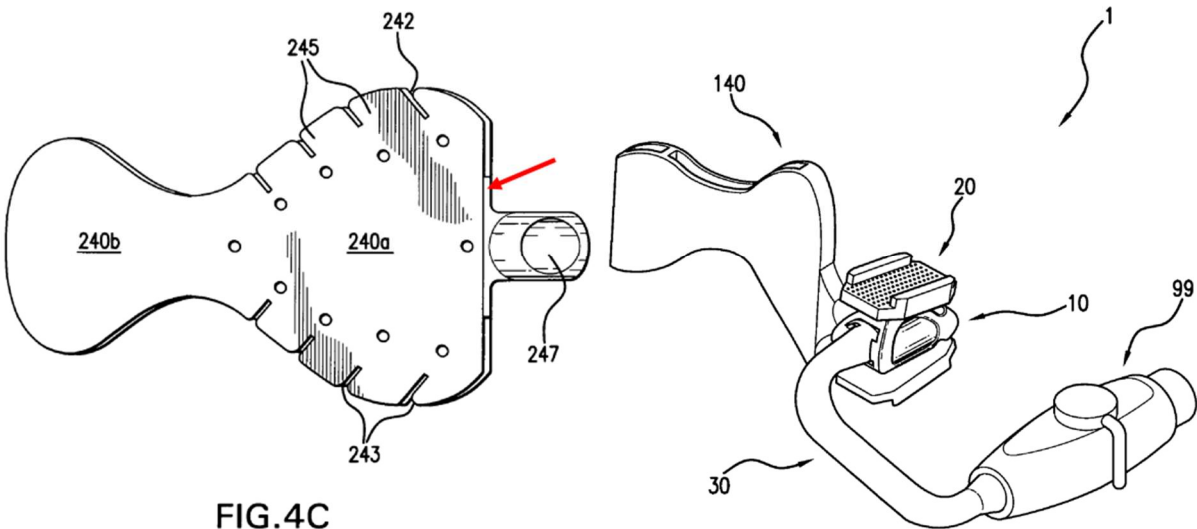
The '329 Patent	Exemplary Disclosures in the Prior Art
extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs, and	The transverse walls extend from an interior surface of the posterior flap 348a and to the anterior flap 348b (transverse walls shown dashed). Black, 14:21-47. Thus, the transverse walls are protrusions. <i>Id.</i>  FIG. 23A The AirBug Mouthpiece discloses the same:

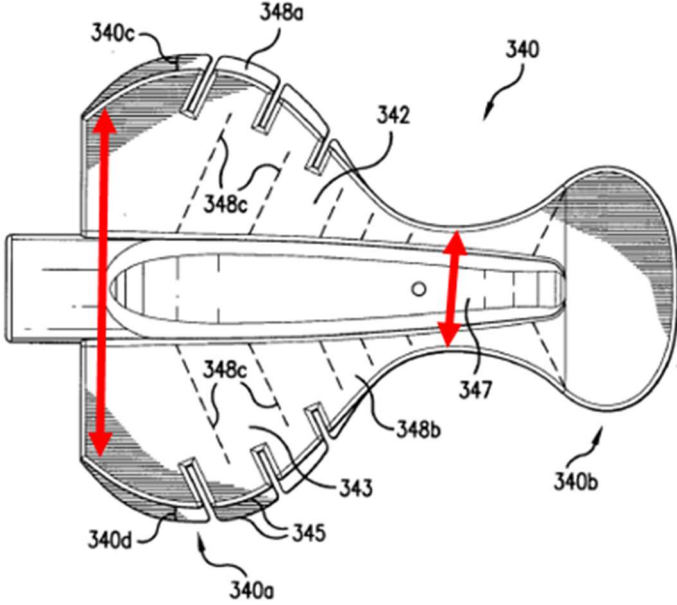
The '329 Patent	Exemplary Disclosures in the Prior Art
	Bridge Structures Connecting First and Second Wall 

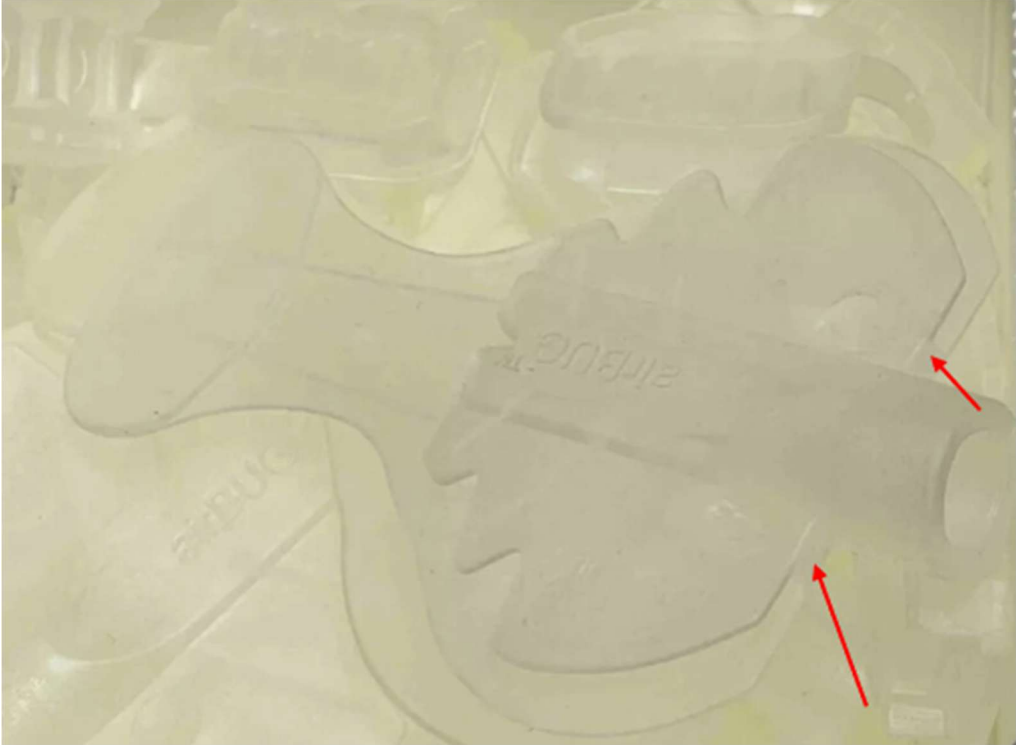
The '329 Patent	Exemplary Disclosures in the Prior Art
	 Bridge structure connecting first and second wall

The '329 Patent	Exemplary Disclosures in the Prior Art
	While Black and AirBug do not expressly teach that the posterior layer 348a (second wall) has third and fourth pluralities of perforations formed along third and fourth edges of the second wall, respectively, it would have been obvious to a PHOSITA to include such perforations in view of one or more of the skill of a PHOSITA, Hirsch, Isolite Mouthpiece, or Park, which, as discussed above, disclose perforations on both the first and second wall along the edges:  FIG. 19E  FIG. 19A Isolite Mouthpiece discloses the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	Park also discloses the same: It would have been obvious to a PHOSITA, to include perforations in the posterior layer 348a of Black or AirBug in view of Hirsch, Isolite Mouthpiece, or Park. A PHOSITA have been motivated to modify the posterior layer 348a of Black or AirBug to include the evacuation holes 410 improve the suction through the tongue shield aspirator

The '329 Patent	Exemplary Disclosures in the Prior Art
	340, and allow for suction through the posterior wall in case fluid escaped the barrier created by the tongue shield aspirator. Hirsch, ¶ 71.
9[e] a third wall connecting the first wall and the second wall such that the first wall is spaced from the second wall to define an inner cavity, wherein a portion of the first wall has a first width adjacent to the first end of the main body portion and a second width adjacent to the second end of the main body portion, wherein a portion of the second wall has a third width adjacent to the first end of the main body portion and a fourth width adjacent to the second end of the main body portion, wherein the first width is greater than the second width, and wherein the third width is greater than the fourth width;	See Limitation 1[e] and 1[d]. Black teaches a third wall (connecting wall) that connects the first and second walls.  FIG. 4C As shown, Black teaches that the anterior layer 348b and the posterior layer 348a are wider at one end.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 23A AirBug teaches the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 The photograph shows a translucent, yellowish dental mold. Two red arrows are overlaid on the image: one points to a small, circular feature on the right side of the mold, and the other points to a larger, irregularly shaped feature in the lower center. The mold appears to be a negative of a dental part, possibly a crown or a bridge component.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex contends that neither Black nor AirBug disclose a connecting wall, Hirsch, Isolite Mouthpiece, and Park also disclose such a connecting wall:

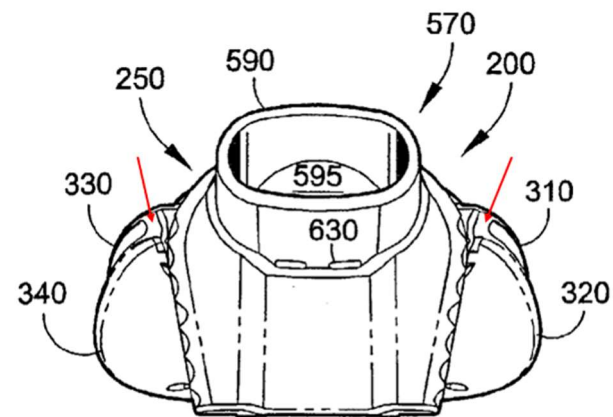
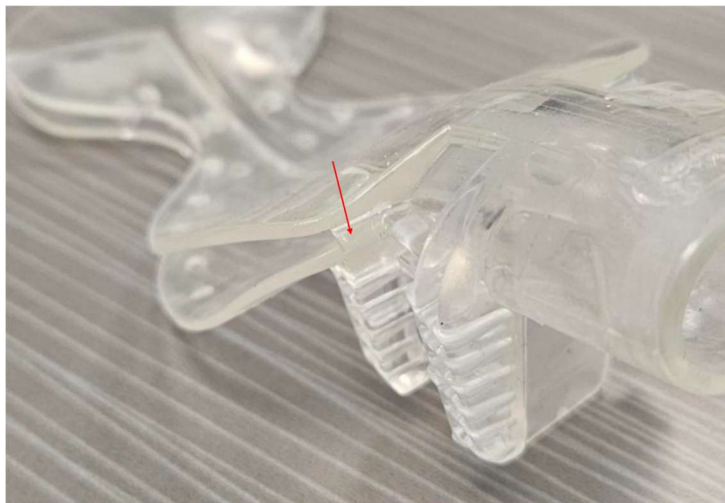
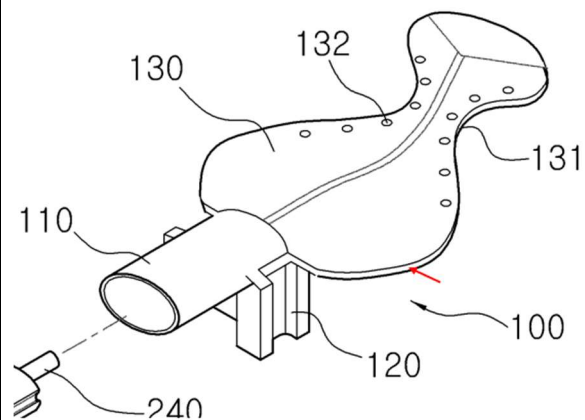


FIG. 19D



Under Solmetex's construction of connecting wall in its infringement contentions, Hirsch and Isolite Mouthpiece also disclose a central spine that Solmetex considers to be a connecting wall:

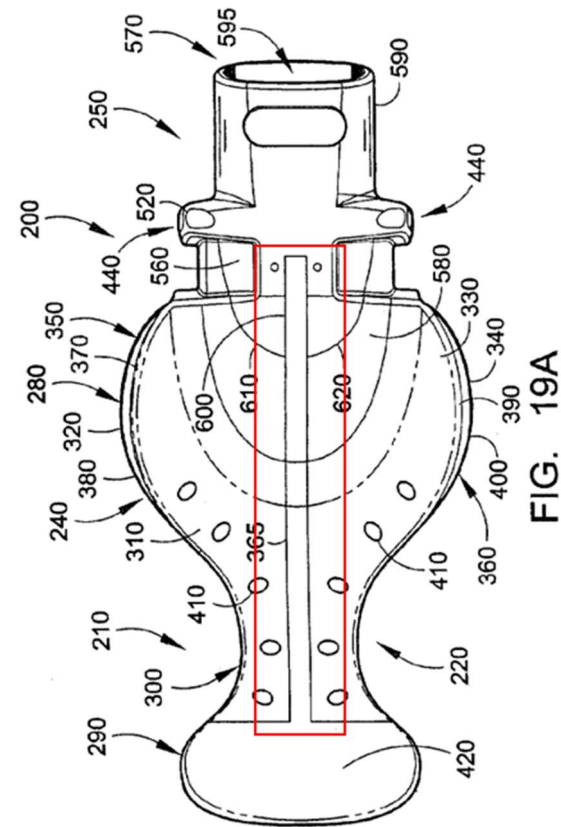
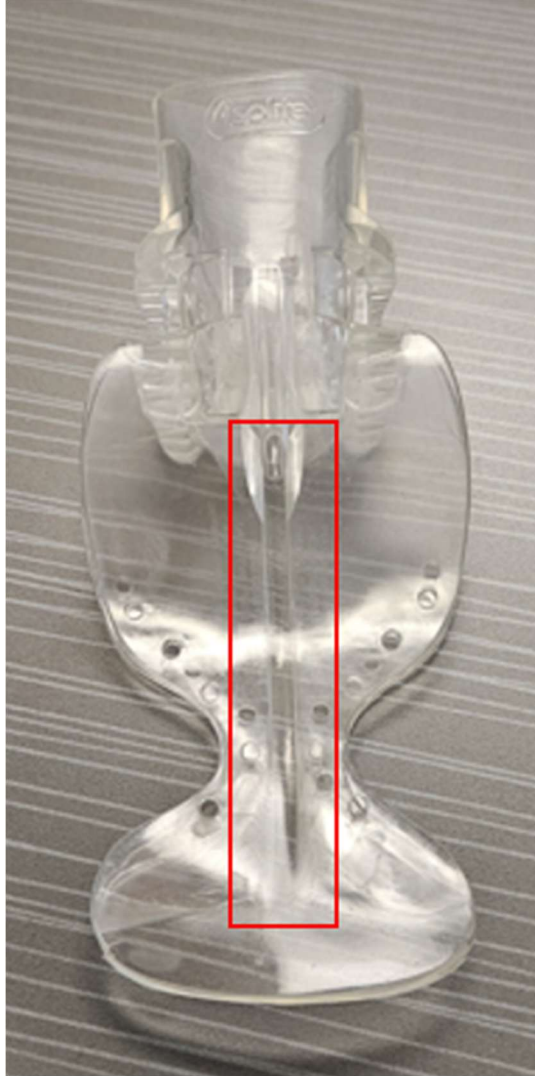
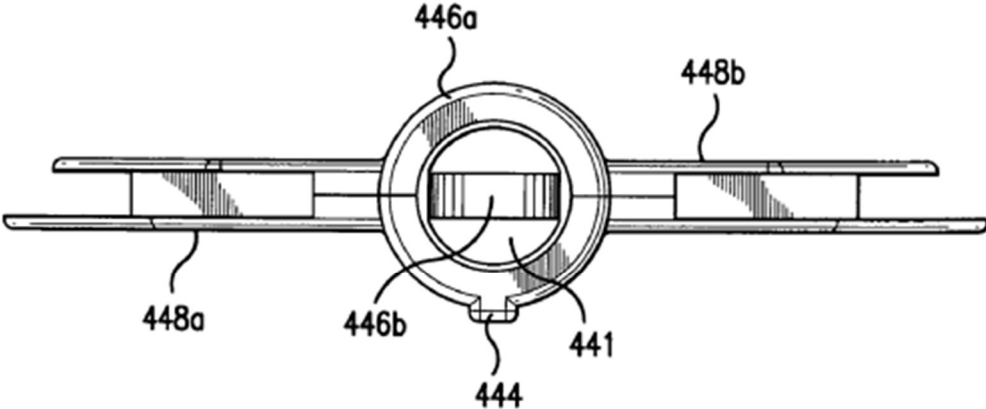
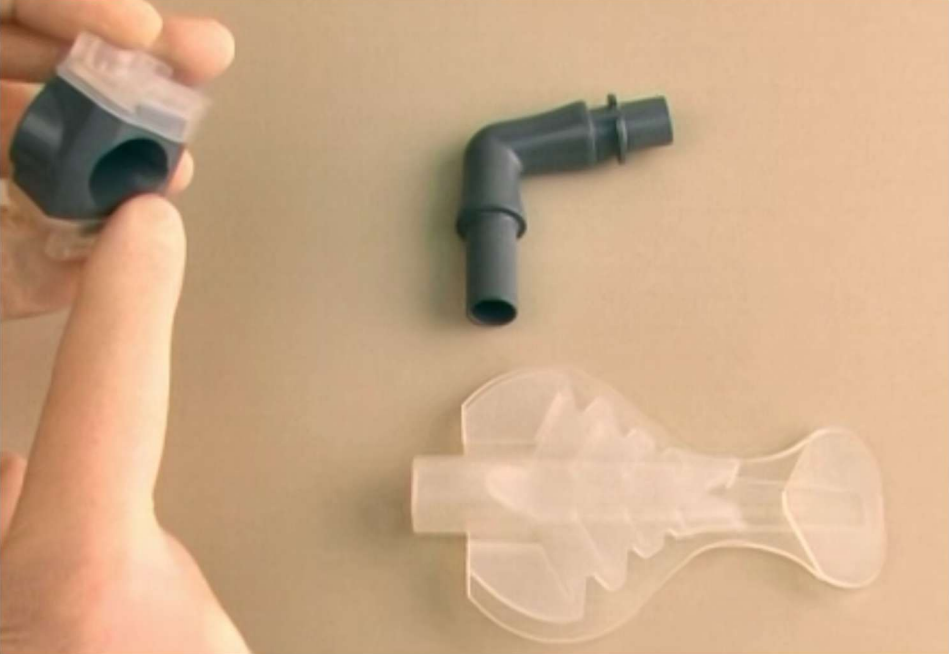


FIG. 19A

It would have been obvious to include the various connecting walls to provide additional structural integrity to the mouthpiece. Further, to the extent that there are minor differences between the length of the connecting wall, it would have been obvious to extend the wall across the entire hollow neck side. Such a change would just be a change in the dimensions or proportions of the wall. MPEP 2144.04.

The '329 Patent	Exemplary Disclosures in the Prior Art
9[f] a suction connector portion extending from the first end of the main body portion, the suction connector portion including: a generally tubular conduit including: an opening extending through the conduit and in fluid communication with the inner cavity, the opening being configured to receive a vacuum portion of the suction system therein, and a cutout configured to engage a protrusion on the suction system to aid in coupling the mouthpiece to the suction system;	Black teaches a suction connector 446 with cutout 441 configured to interlock with corresponding protrusion 332 of a vacuum adapter, wherein a shape of the cutout follows a shape of a shield logo.  FIG. 24D

The '329 Patent	Exemplary Disclosures in the Prior Art
	FIG. 22A Further, Black teaches a “lock-and-key locking mechanism” that interlocks the bite member 310 and the evacuation tube 330. Black, 13:16-67. “[T]he lock-and-key mechanism ensures that the evacuation tube [i.e., vacuum source] will not detach from the bite member during use...” Black, 13:57-59. This is exactly, or at worst an obvious variation of, what claim 6 describes. AirBug Mouthpiece discloses the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex contends that neither Black nor AirBug disclose a shield shaped cutout, Ascentcare notes that shields are commonly circular, and Solmetex does not specify any specific shield in its specification. If Solmetex argues that Black or AirBug does not teach a locking mechanism of the suction connector, specifically, it would be obvious to include a locking mechanism on the suction connector in view of Hirsch. Hirsch discloses a connection section 570 (suction connector) that extends from the retractor 240 and attaches to the vacuum-only adapter 230 to deliver suction to the intraoral device. Hirsch, ¶ 89, FIG. 19E. The connection section 570 includes a tube 590 having slots 630 that retain corresponding retention barbs on the vacuum-only adapter 230. Hirsch, ¶ 90, FIG. 19E. The slots are 630 a locking mechanism, in the form of a hole (i.e. cut out), formed on the suction connector of a mouthpiece and configured to receive corresponding protrusions from a vacuum adapter.

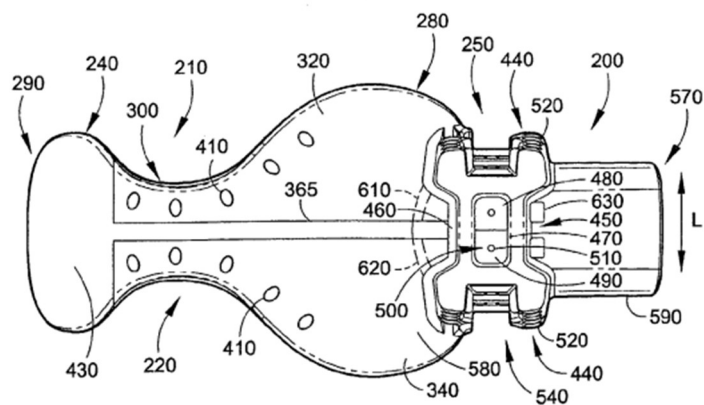
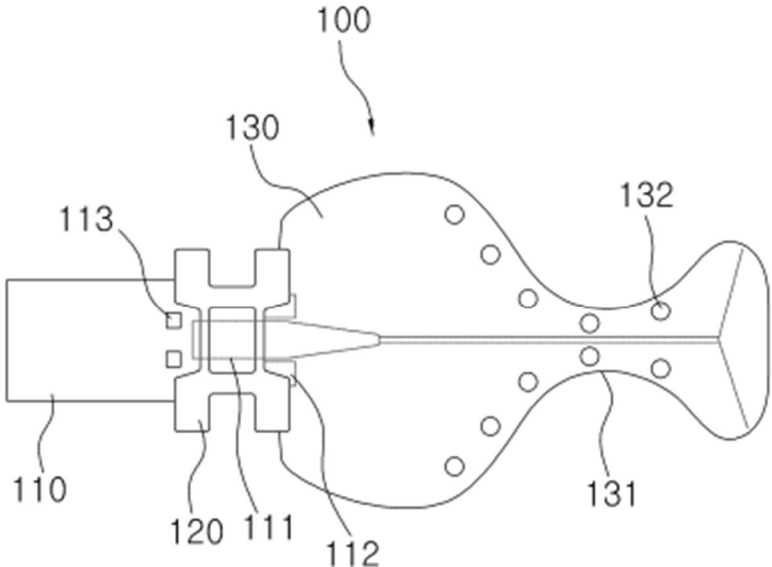


FIG. 19E

Isolite teaches the same:



Park teaches the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 It would have been obvious to a PHOSITA to modify Black or AirBug’s suction connector to include Hirsch, Isolite, or Park’s slots 630 at least to make a more secure connection between the mouthpiece and vacuum source. Black, 16:1-7. In fact, Black points out how important it is to have a secure connection to the vacuum source. Black, 13:57-59. Holes formed on the suction connector that accept projections on the vacuum tube are merely an obvious variant of Black’s lock-and-key mechanism, since it is just choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success. MPEP 2143(I)(E). To the extent that Solmetex contends that none of the references disclose a “shield shape,” Ascentcare further notes that the USPTO has already noted that “having a particular shape for the cutout is a matter of choice in which a person of ordinary skill in the art would have found obvious by the absent [<i>sic</i>] of persuasive evidence in the present application, that the particular configuration of the claimed shape of the cutout is significant.” <i>See</i> Prosecution History ’329 Patent at Office Action 9/23/2023, page 11, ¶ 32. Changing the slots 630 from rectangular to a “shield” shape is obvious. MPEP 2144.04(IV)(B). The Supreme Court has likewise found modifications on one system to fit another on the market to be obvious to a PHOSITA. <i>KSR Int’l Co. v. Teleflex Inc.</i>, 550 U.S. 398, 424, 127 S. Ct. 1727, 1744, 167 L. Ed. 2d 705 (2007) (“The

The '329 Patent	Exemplary Disclosures in the Prior Art
	interaction of multiple components means that changing one component often requires the others to be modified as well. Technological developments made it clear that engines using computer-controlled throttles would become standard. As a result, designers might have decided to design new pedals from scratch; but they also would have had reason to make pre-existing pedals work with the new engines. Indeed, upgrading its own pre-existing model led KSR to design the pedal now accused of infringing the Engelgau patent.”). Accordingly, to the extent that Black or AirBug do not disclose a shield shaped cutout, it would have been obvious to modify Black or AirBug in view of Hirsch, Isolite, or Park to include a shield shaped cutout.
9[g] a mouth prop including a first side and a second side that are inwardly tapered from a top surface of the mouth prop towards a bottom surface of the mouth prop, the first side and the second side each including a plurality of ridges; and	This limitation requires a mouth prop that has a smaller posterior surface than the anterior surface. Almost all bite blocks are designed in this way. This design follows the natural shape of the mouth when it is open, because the jaw is a hinge, which any PHOISTA would understand based on very basic dental anatomy. Black teaches a bite member 310 (mouth prop) having a top side 314 and a bottom side 316, and Black teaches that the sides lie in divergent planes (<i>i.e.</i>, taper) Black, 11:61-12:9. As shown in FIGS. 19 and 21A, Black illustrates that the bite member 310 includes a bite grip 320 with a plurality of ridges on each side of the bite grip 320. FIG. 19 FIG. 21A AirBug discloses the same tapering mouthpiece with ridges:

The '329 Patent	Exemplary Disclosures in the Prior Art
	The same tapering, ridged, bite blocks are disclosed by Hirsch, and Isolite Mouthpiece.

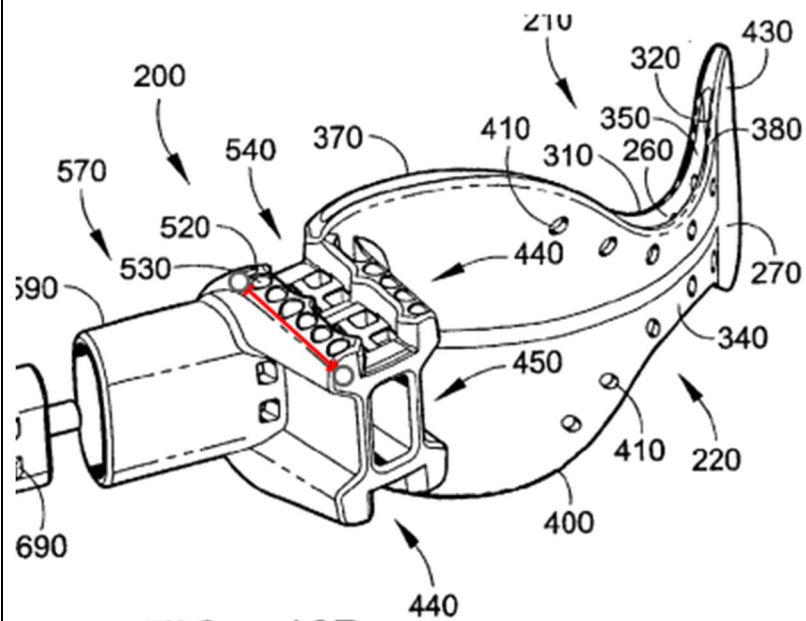
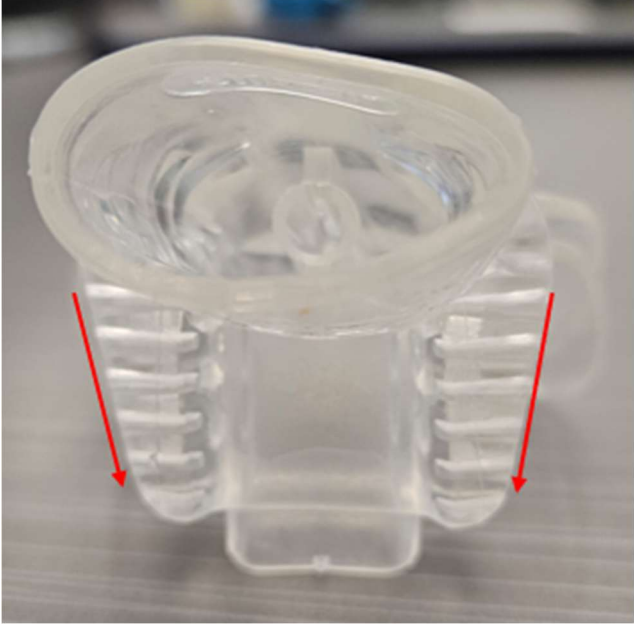
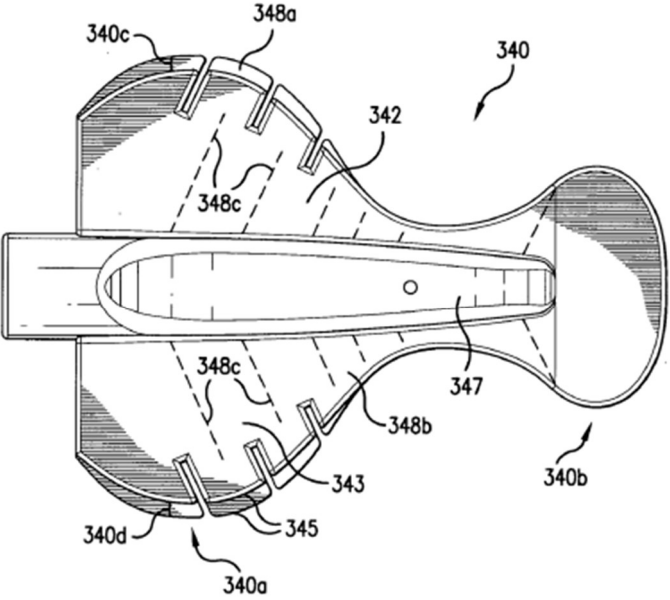
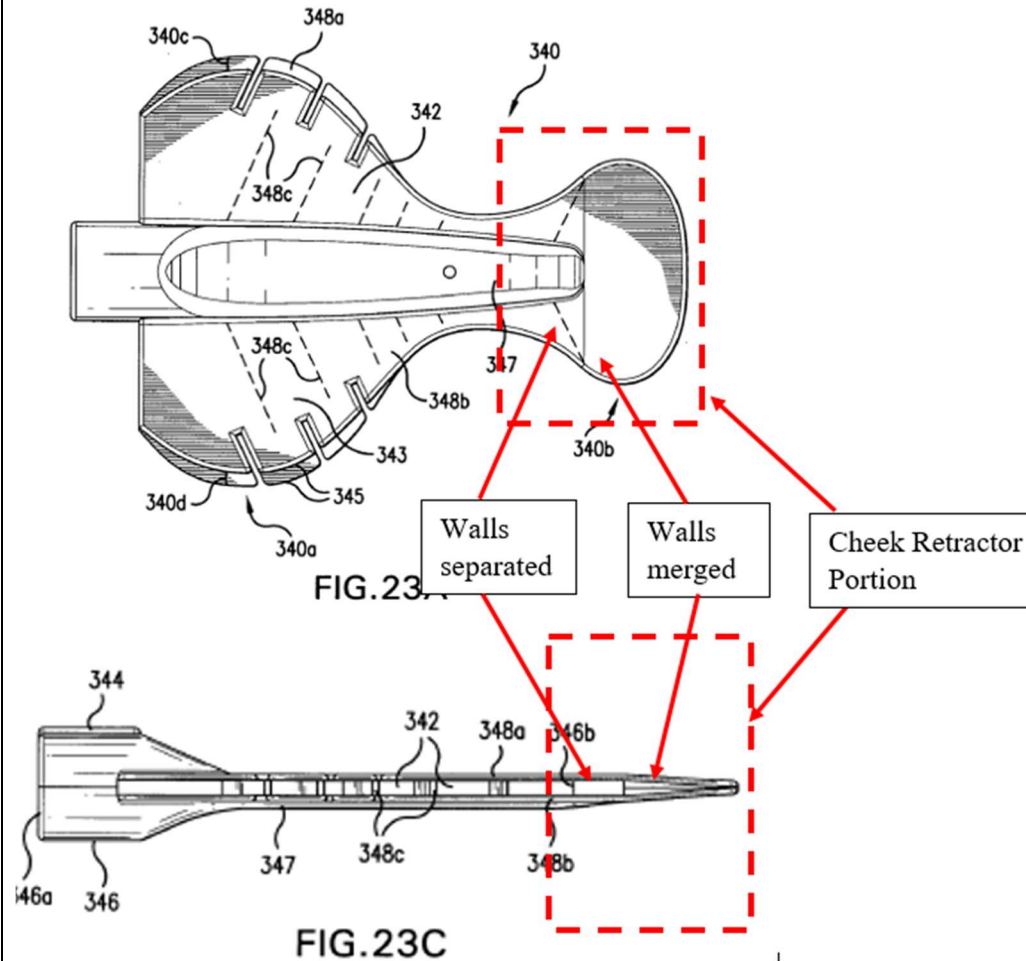


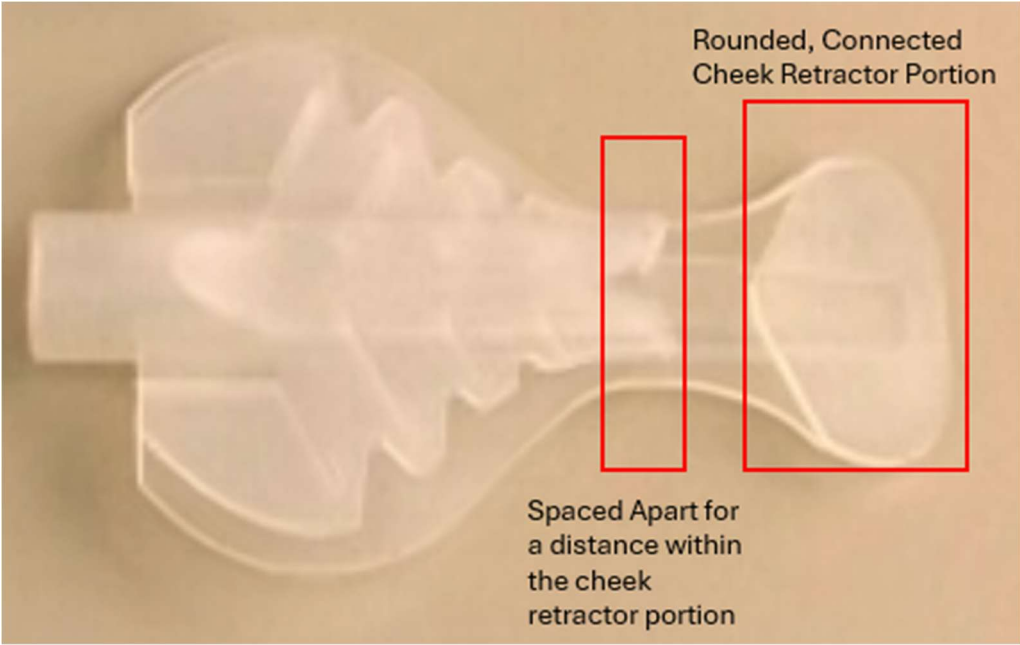
FIG. 18B

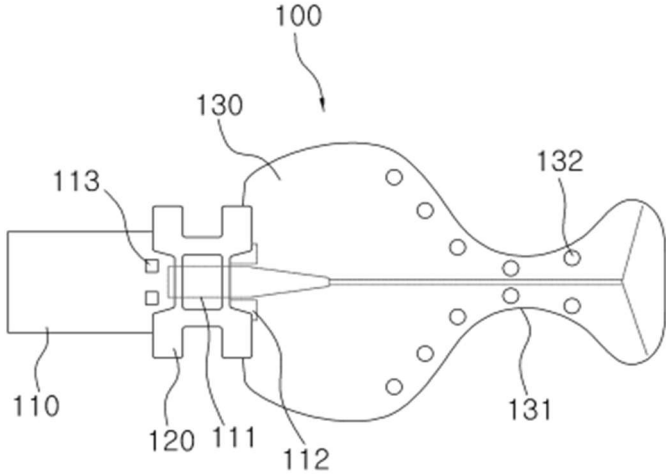
The '329 Patent	Exemplary Disclosures in the Prior Art
	
9[h] a cheek retractor portion having a first cheek-retractor end coupled to the second end of the main body portion and a second cheek-retractor end, the first cheek-retractor end and the second cheek-retractor end each having rounded edges, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other	Black teaches a second flap 340b that functions as a cheek retractor and is formed on the opposite side of the tongue shield aspirator 340 from the neck having rounded edges 346. Black, 14:5-9, FIG. 23A. As shown in FIG. 23A the second flap 340b is connected to, and expands outwardly away from, the second end of the first flap 340a.

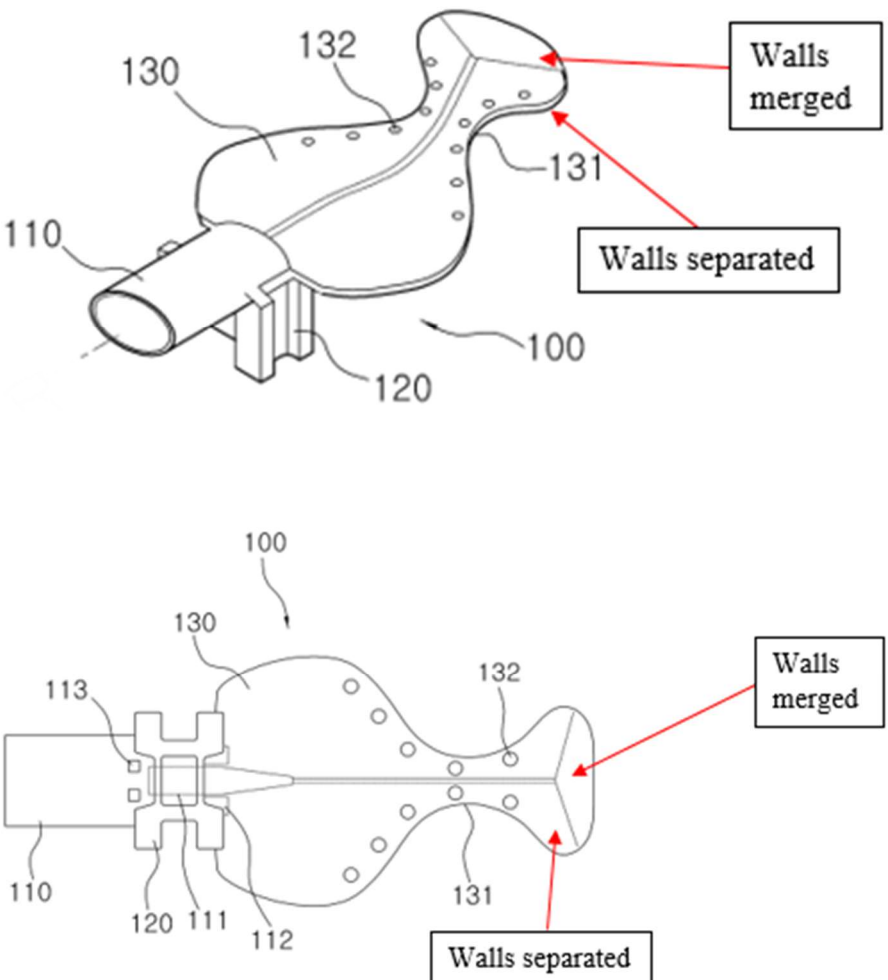
The '329 Patent	Exemplary Disclosures in the Prior Art
for a distance within the cheek-retractor portion before being connected to each other in the cheek-retractor portion.	 FIG. 23A FIG. 23C of Black illustrates that both the posterior and anterior layers 348b, 348a transition into the second flab 340b (cheek retractor). For a short distance after the narrowest portion of the isthmus (349) the layers 348a, 348b remain separated from one another before merging together to form the cheek retractor. Annotated FIG. 23C (below) illustrates that the posterior layer 348a and the anterior layer 348b are separated in the cheek retractor portion (dashed area) and then merge together in the dashed area.

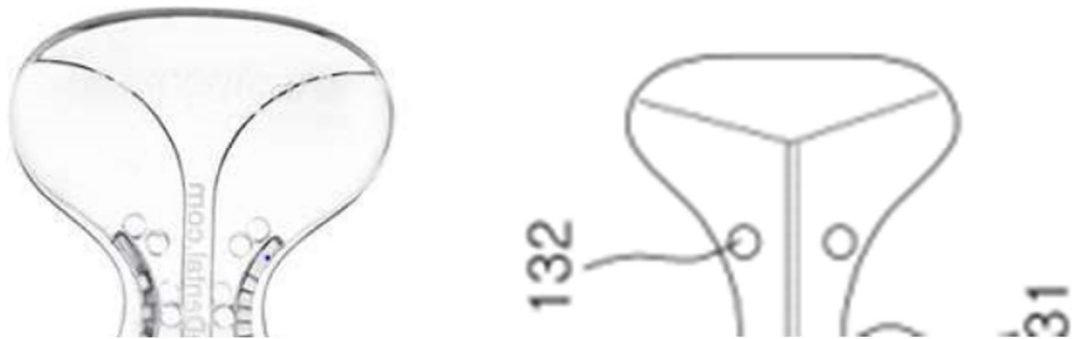


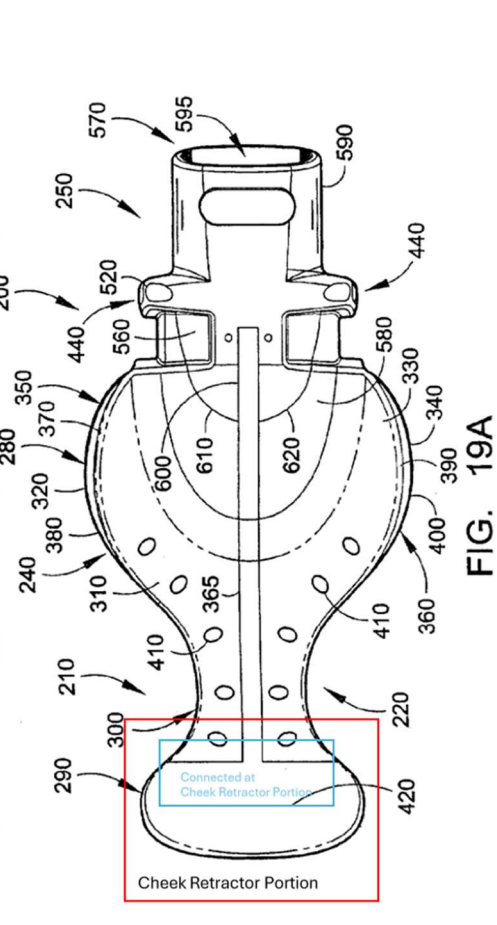
Black explains: “In embodiments of the invention, the upper opening defined by the space between the top edges of the anterior and posterior layers, and the lower opening defined by the space between the bottom edges of the anterior and posterior layers may extend through the transition section 349 (as shown, e.g., in FIG. 23C) *as well as at least a portion of the distal flap 340b.*” Black, 15:14-20. This is exactly how the cheek retractor portion is claimed in claim 1.

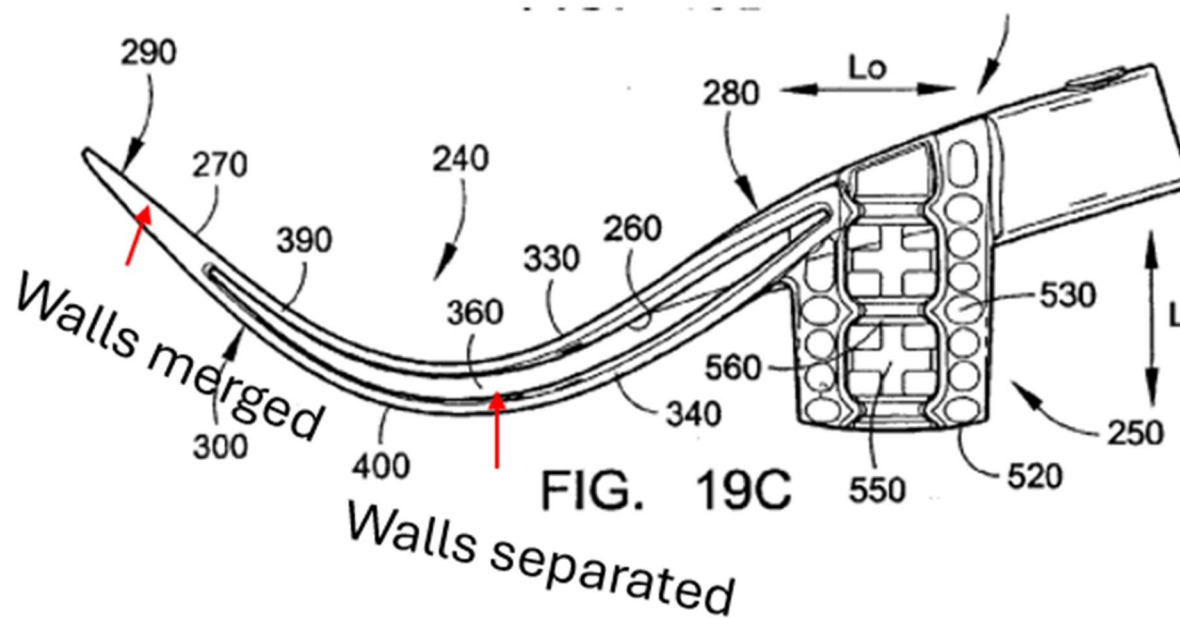
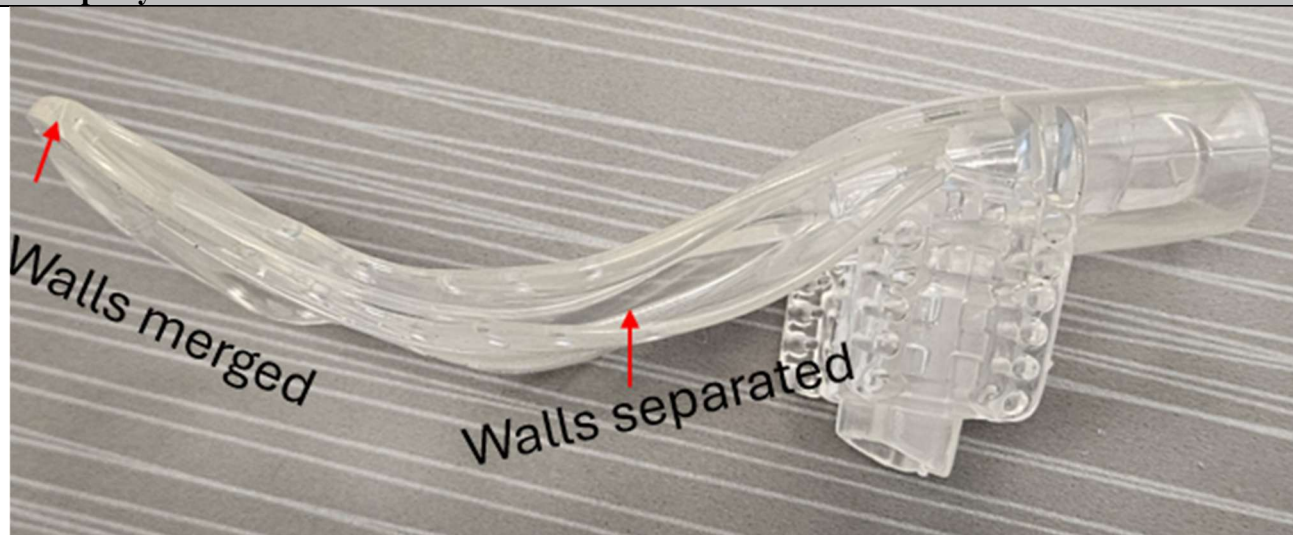
The '329 Patent	Exemplary Disclosures in the Prior Art
	If Solmetex tries to argue that the dashed area above is not the “cheek retractor portion,” it should be noted that the specification defines the cheek retractor portion 130 as the area where the mouthpiece widens again after the narrow, “rectangular area.” ‘329 Patent, FIG. 1B. In fact, the specification specifically says that the narrow rectangular area is part of the “main body portion.” ‘329 Patent, 4:14-21, 5:15-20. Therefore, the “cheek retractor portion” in Black must be the point where the mouthpiece begins to widen again after the narrow isthmus 349. This is entirely in-line with both the claim language (“a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end”) and the specification. Additionally, Black defines the transition section 349 as “the narrowest section of the tongue shield aspirator,” and the distal flap (cheek retractor) as the portion beyond the transition section. Black, 14:1-20. Under this construction, AirBug teaches the same:  As shown above, the cheek retractors have rounded edges. To the extent that Solmetex contends that Black does not practice limitation 9[h], Black or AirBug Mouthpiece in combination with one or more of the skill of a PHOSITA, Park, Hirsch, and Isolite Mouthpiece teaches limitation 9[h].

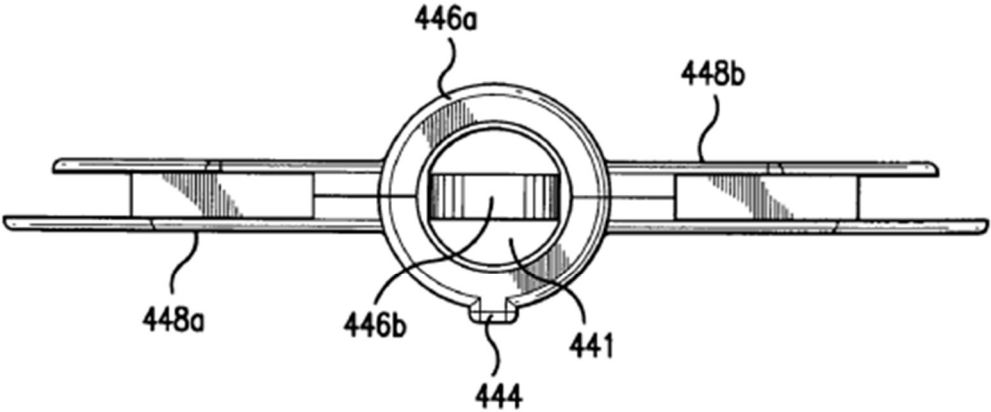
The '329 Patent	Exemplary Disclosures in the Prior Art
	Park teaches that the concave section 131 (narrower second end) connects to a cheek retractor, which is formed to the right of the concave section and expands outwardly away from the second narrower end. Park, ¶ 31, FIGS. 1-3.  Park teaches two walls separated from each other to form an inner cavity anywhere holes 132 exist. FIG. 2 shows holes 132 are present right up until the two lines that form a “Y-shape” near the end of the mouth prop, which means that the first and second walls that transition into the cheek retractor portion remain separated for a distance within the cheek retractor portion. Past the “Y-shaped” lines, the first wall connects to the second wall, such that they are no longer separated. <i>Id.</i>

The '329 Patent	Exemplary Disclosures in the Prior Art
	 Additionally, Park's design is basically identical to the cheek retractor that Solmetex appears to assert as infringing this limitation. <i>Id.</i>

The '329 Patent	Exemplary Disclosures in the Prior Art
	 Likewise, Hirsch and the Isolite Mouthpiece disclose the same rounded cheek retractor and connection:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 



The '329 Patent	Exemplary Disclosures in the Prior Art
10 The mouthpiece of claim 9, wherein the cutout has a shield shape.	Black teaches a suction connector 446 with cutout 441 configured to interlock with corresponding protrusion 332 of a vacuum adapter, wherein a shape of the cutout follows a shape of a shield logo.  FIG. 24D

The '329 Patent	Exemplary Disclosures in the Prior Art
	FIG. 22A Further, Black teaches a “lock-and-key locking mechanism” that interlocks the bite member 310 and the evacuation tube 330. Black, 13:16-67. “[T]he lock-and-key mechanism ensures that the evacuation tube [i.e., vacuum source] will not detach from the bite member during use...” Black, 13:57-59. This is exactly, or at worst an obvious variation of, what claim 6 describes. AirBug Mouthpiece discloses the same

The '329 Patent	Exemplary Disclosures in the Prior Art
	To the extent that Solmetex contends that neither Black nor AirBug disclose a shield shaped cutout, Ascentcare notes that shields are commonly circular, and Solmetex does not specify any specific shield in its specification. If Solmetex argues that Black or AirBug does not teach a locking mechanism of the suction connector, specifically, it would be obvious to include a locking mechanism on the suction connector in view of Hirsch. Hirsch discloses a connection section 570 (suction connector) that extends from the retractor 240 and attaches to the vacuum-only adapter 230 to deliver suction to the intraoral device. Hirsch, ¶ 89, FIG. 19E. The connection section 570 includes a tube 590 having slots 630 that retain corresponding retention barbs on the vacuum-only adapter 230. Hirsch, ¶ 90, FIG. 19E. The slots are 630 a locking mechanism, in the form of a hole (i.e. cut out), formed on the suction connector of a mouthpiece and configured to receive corresponding protrusions from a vacuum adapter.

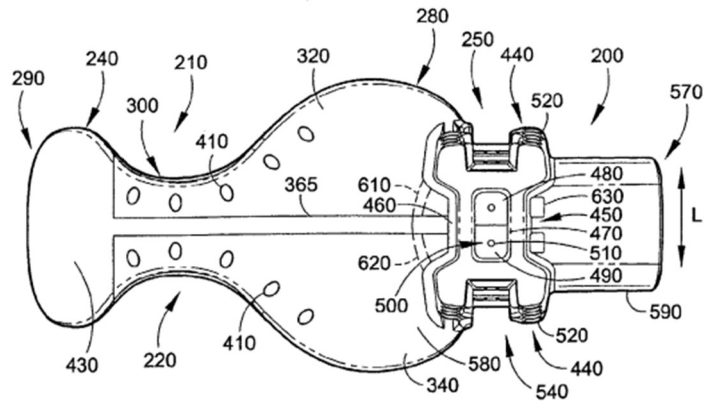
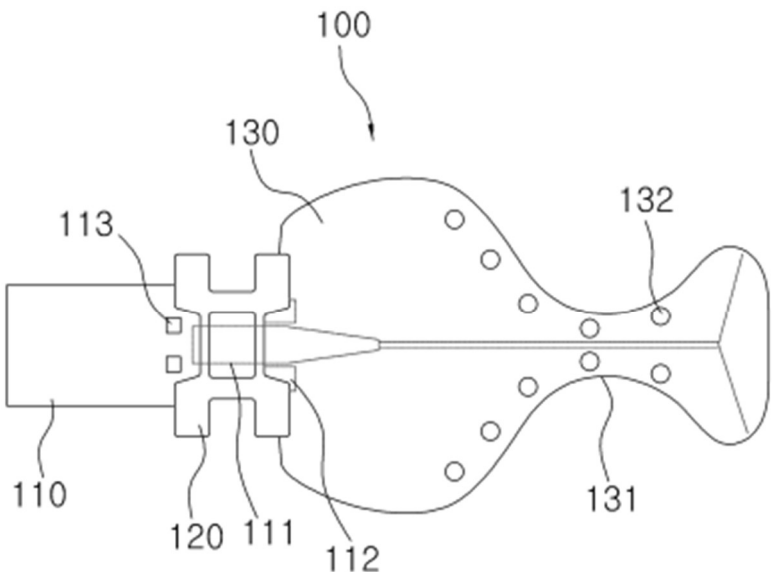


FIG. 19E

Isolite teaches the same:



Park teaches the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 It would have been obvious to a PHOSITA to modify Black or AirBug’s suction connector to include Hirsch, Isolite, or Park’s slots 630 at least to make a more secure connection between the mouthpiece and vacuum source. Black, 16:1-7. In fact, Black points out how important it is to have a secure connection to the vacuum source. Black, 13:57-59. Holes formed on the suction connector that accept projections on the vacuum tube are merely an obvious variant of Black’s lock-and-key mechanism, since it is just choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success. MPEP 2143(I)(E). To the extent that Solmetex contends that none of the references disclose a “shield shape,” Ascentcare further notes that the USPTO has already noted that “having a particular shape for the cutout is a matter of choice in which a person of ordinary skill in the art would have found obvious by the absent [<i>sic</i>] of persuasive evidence in the present application, that the particular configuration of the claimed shape of the cutout is significant.” <i>See</i> Prosecution History ’329 Patent at Office Action 9/23/2023, page 11, ¶ 32. Changing the slots 630 from rectangular to a “shield” shape is obvious. MPEP 2144.04(IV)(B). The Supreme Court has likewise found modifications on one system to fit another on the market to be obvious to a PHOSITA. <i>KSR Int’l Co. v. Teleflex Inc.</i>, 550 U.S. 398, 424, 127 S. Ct. 1727, 1744, 167 L. Ed. 2d 705 (2007) (“The

The '329 Patent	Exemplary Disclosures in the Prior Art
	interaction of multiple components means that changing one component often requires the others to be modified as well. Technological developments made it clear that engines using computer-controlled throttles would become standard. As a result, designers might have decided to design new pedals from scratch; but they also would have had reason to make pre-existing pedals work with the new engines. Indeed, upgrading its own pre-existing model led KSR to design the pedal now accused of infringing the Engelgau patent.”). Accordingly, to the extent that Black or AirBug do not disclose a shield shaped cutout, it would have been obvious to modify Black or AirBug in view of Hirsch, Isolite, or Park to include a shield shaped cutout.
11 The mouthpiece of claim 9, wherein the cutout is generally triangular and has a top edge, a first curved edge, and a second curved edge.	As discussed above, it would have been obvious to a PHOSITA to modify Black or AirBug’s suction connector to include Hirsch, Isolite, or Park’s slots 630 at least to make a more secure connection between the mouthpiece and vacuum source. Black, 16:1-7. In fact, Black points out how important it is to have a secure connection to the vacuum source. Black, 13:57-59. Holes formed on the suction connector that accept projections on the vacuum tube are merely an obvious variant of Black’s lock-and-key mechanism, since it is just choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success. MPEP 2143(I)(E). To the extent that Solmetex contends that none of the references disclose a “shield shape,” Ascentcare further notes that the USPTO has already noted that “having a particular shape for the cutout is a matter of choice in which a person of ordinary skill in the art would have found obvious by the absent [<i>sic</i>] of persuasive evidence in the present application, that the particular configuration of the claimed shape of the cutout is significant.” .” <i>See</i> Prosecution History ’329 Patent at Office Action 9/23/2023, page 11, ¶ 32. Changing the slots 630 from rectangular to a “shield” shape is obvious. MPEP 2144.04(IV)(B). The Supreme Court has likewise found modifications on one system to fit another on the market to be obvious to a PHOSITA. <i>KSR Int’l Co. v. Teleflex Inc.</i>, 550 U.S. 398, 424, 127 S. Ct. 1727, 1744, 167 L. Ed. 2d 705 (2007) (“The interaction of multiple components means that changing one component often requires the others to be modified as well. Technological developments made it clear that engines using computer-controlled throttles would become standard. As a result, designers might have decided to design new pedals from scratch; but they also would have had reason to make pre-existing pedals work with the new engines. Indeed, upgrading its own pre-existing model led KSR to design the pedal now accused of infringing the Engelgau patent.”). Accordingly, to the extent that Black or AirBug do not disclose a shield shaped cutout, it would have been obvious to modify Black or AirBug in view of Hirsch, Isolite, or Park to include a shield shaped cutout.
12 The mouthpiece of claim 9, wherein a wall thickness of the	Black clearly illustrates that the neck 446 is much thicker than the posterior or anterior layers 448a, 448b. FIG. 24D

The '329 Patent	Exemplary Disclosures in the Prior Art
conduit is greater than a wall thickness of the first wall or the second wall of the main body.	FIG. 24D AirBug, Hirsch, and Isolite Mouthpiece each disclose the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 The photograph shows a clear plastic dental mold, likely a bite block or a similar device. A red arrow points to a specific feature on the left side of the mold. The mold has a complex shape with various curves and indentations. The text "airBUG™" is visible on the mold, along with the word "Onstage" in a larger font. The mold is set against a light-colored, textured background.

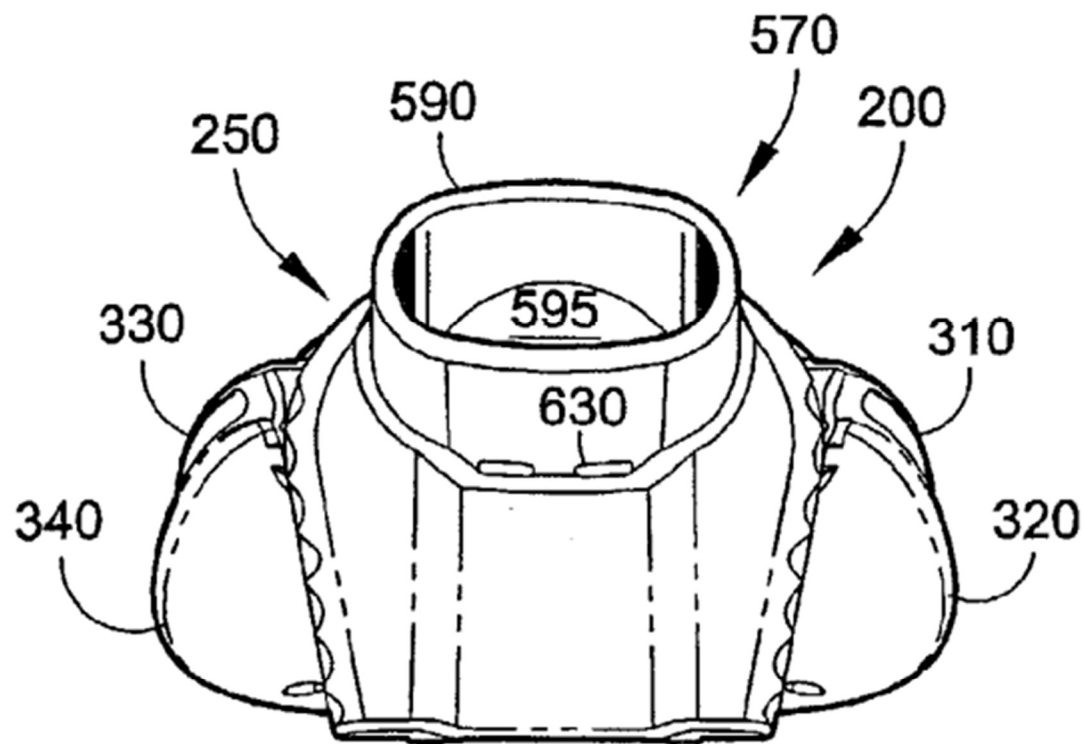
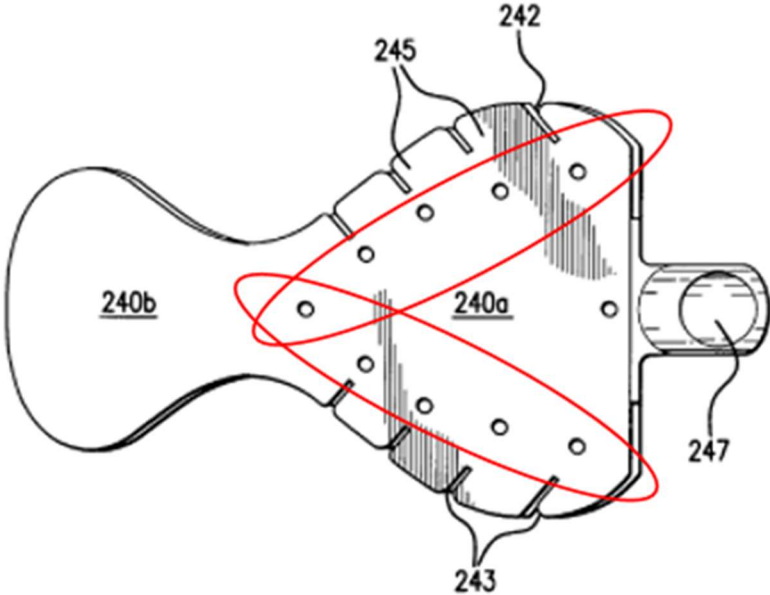
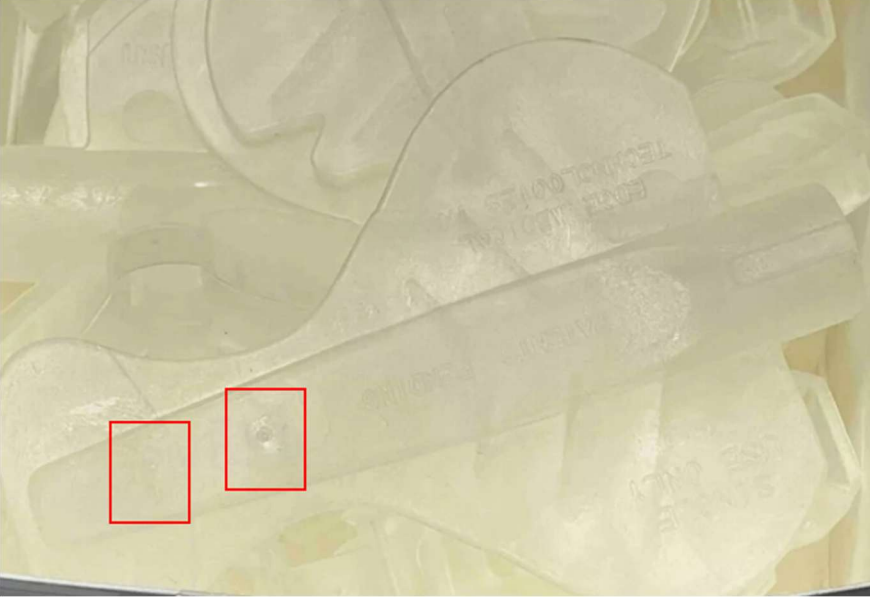


FIG. 19D

The '329 Patent	Exemplary Disclosures in the Prior Art
	
13 The mouthpiece of claim 9, wherein the first plurality of perforations of the first wall and the second plurality of perforations of the first wall each include at least five perforations.	Black teaches a first wall having a first and second plurality of perforations. FIG. 4C shows that the first plurality of perforations (along the upper edge) has five perforations and the second plurality of perforations (along the lower edge) has five perforations. The perforation nearest the cheek retractor counts as part of both the first and second pluralities of perforations. The claim language does not require the first and second pluralities of perforations be completely separate from one another.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 4C AirBug also discloses:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex disagrees that the perforations are sufficient in quantity or in the proper location, it would have been obvious to a PHOSITA, for example, adding more perforations, as it would be obvious to a PHOSITA, as a mere duplication of parts. MPEP 2144.04(VI)(B). Adding more perforations to the tongue shield aspirator of Black would improve suction and the area of suction. Alternatively, it would have been obvious to combine AirBug with one or two of the below: If Solmetex argues that there is no overlap between the pluralities of perforations (e.g., there must be at least 10 total perforations), adding more perforations would be obvious to a PHOSITA, as a mere duplication of parts. MPEP 2144.04(VI)(B). Adding more perforations to the tongue shield aspirator of Black would improve suction and the area of suction.

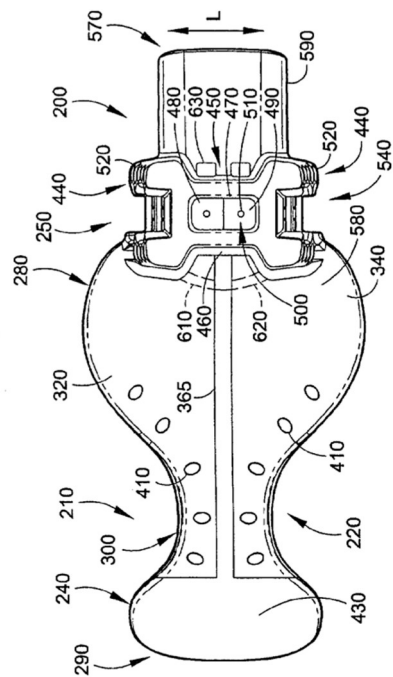


FIG. 19E

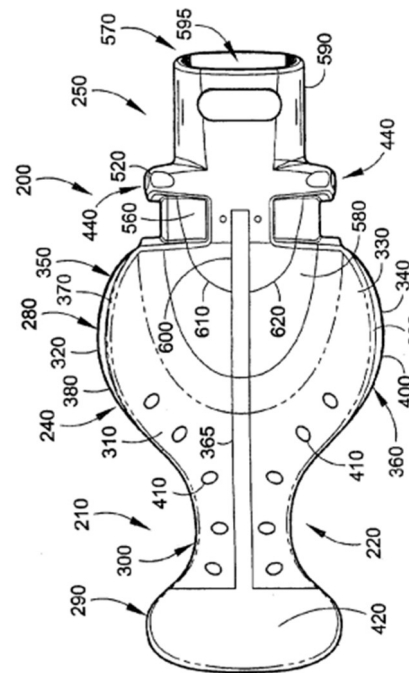
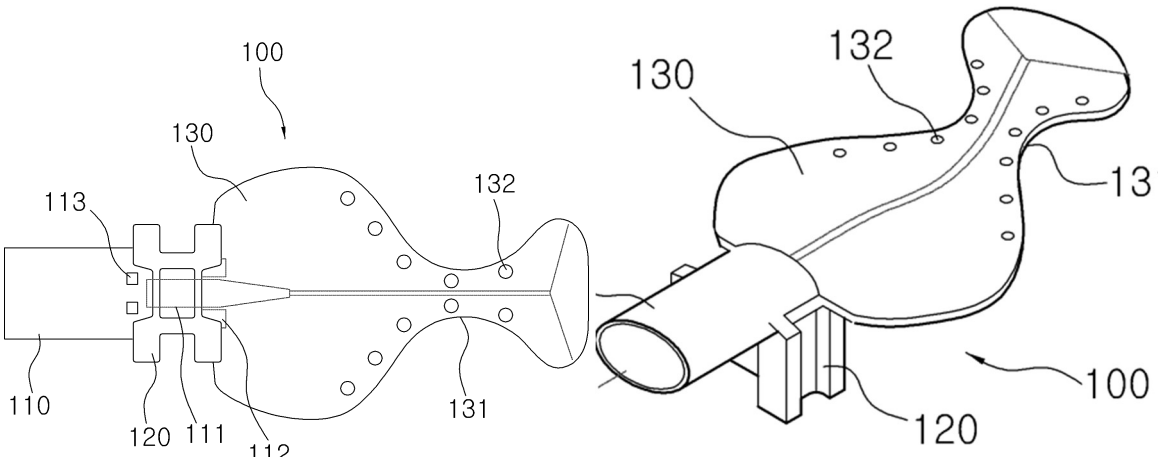


FIG. 19A

Isolite Mouthpiece discloses the same:



The '329 Patent	Exemplary Disclosures in the Prior Art
	Park also discloses the same:  A PHOSITA have been motivated to modify the posterior layer 348a of Black or AirBug to include the evacuation holes 410 improve the suction through the tongue shield aspirator 340, and allow for suction through the posterior wall in case fluid escaped the barrier created by the tongue shield aspirator. Hirsch, ¶ 71. To the extent that Solmetex contends that Black and AirBug do not disclose the perforations on a particular wall, it would have been obvious to include perforations on the anterior layer of Black in view of Hirsch, Isolite Mouthpiece, or Park, as Hirsch and Isolite Mouthpiece have perforations on both the anterior and posterior flaps. Including additional perforations would improve suction, area of suction, and therefore, patient comfort.
14 The mouthpiece of claim 13, wherein the third plurality of perforations of the second wall and the fourth plurality of perforations of the second wall each include at least three perforations.	Neither Black nor AirBug disclose at least three perforations on a second wall. Notwithstanding, Hirsch, the Isolite Mouthpiece, and Park teach a second wall having a third plurality of perforations formed adjacent to and extending along a portion of the third edge, and a fourth plurality of perforations formed adjacent to and extending along a portion of the fourth edge. As shown in FIG. 19E, there is a third plurality of five perforations (along the edge of rear flap 320) and a fourth plurality of five perforations (along the edge of rear flap 340).

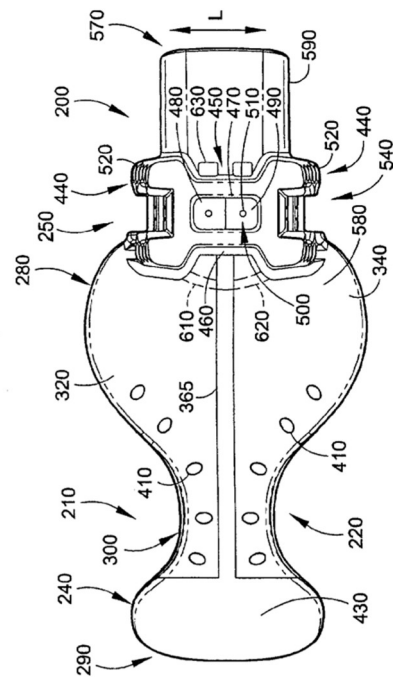


FIG. 19E

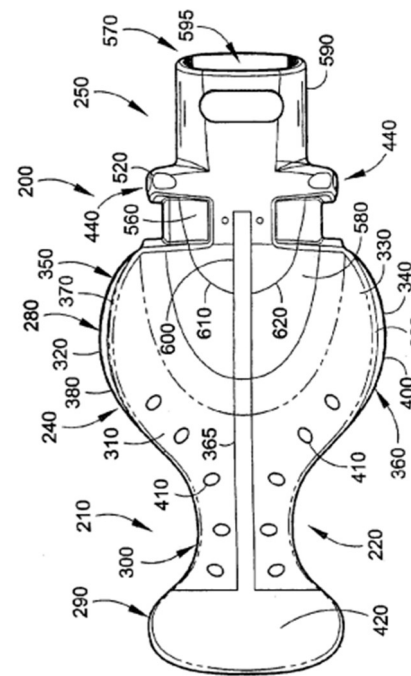
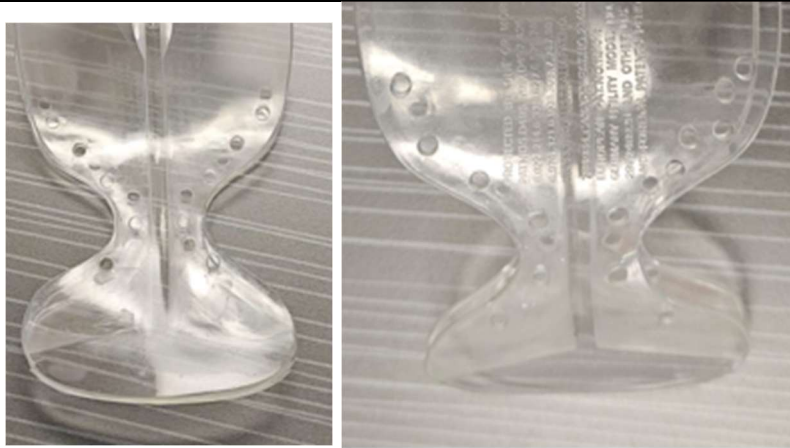
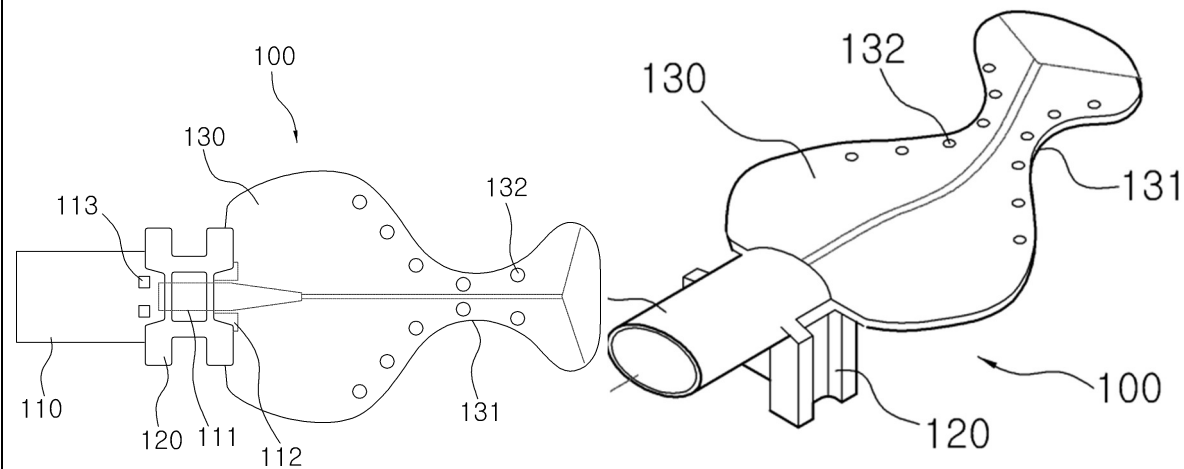


FIG. 19A

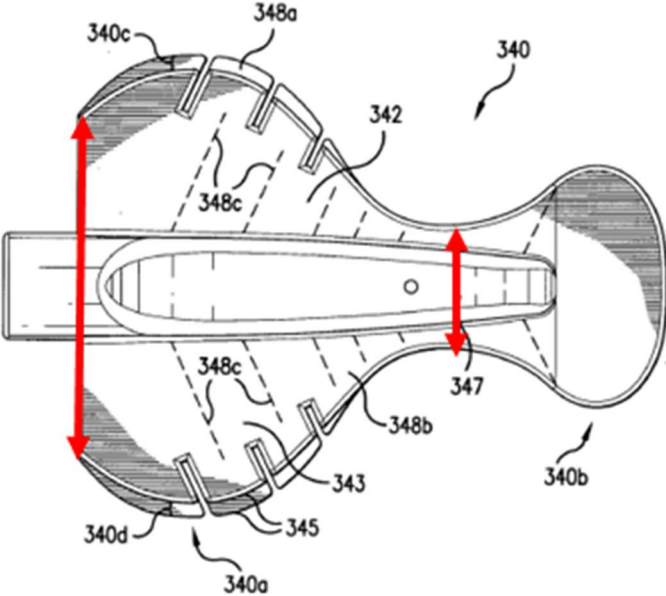
Isolite Mouthpiece discloses the same:

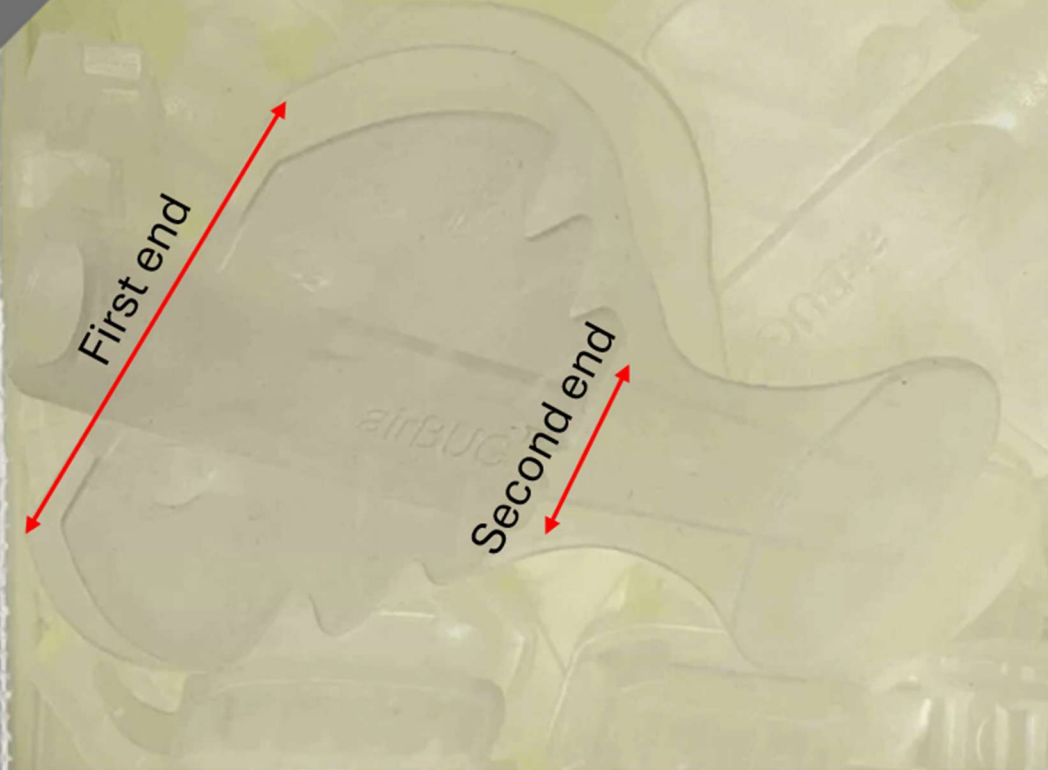


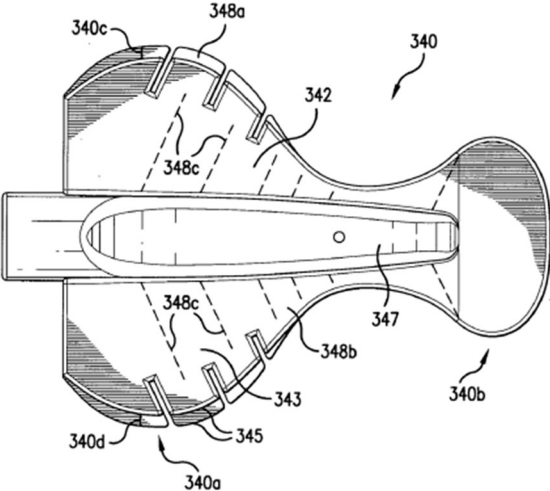
Park also discloses the same:

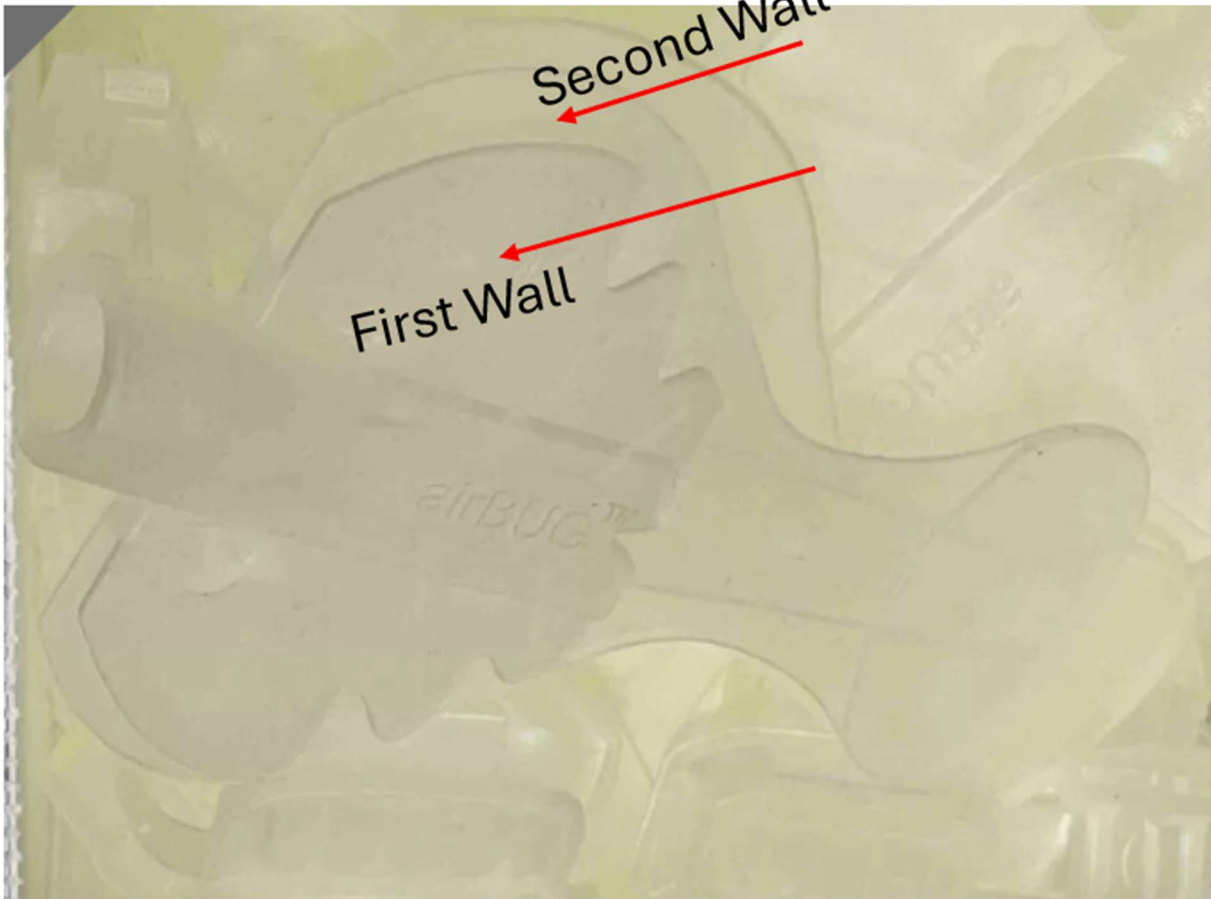


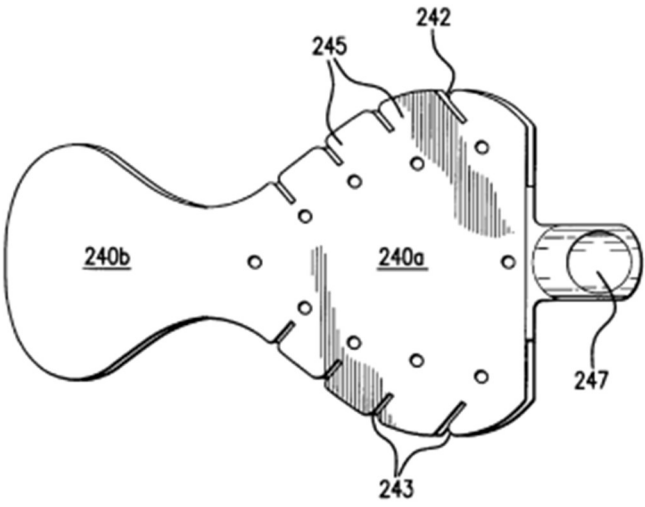
As discussed above, a PHOSITA have been motivated to modify the posterior layer 348a of Black or AirBug to include the evacuation holes 410 improve the suction through the tongue shield aspirator 340, and allow for suction through the posterior wall in case fluid escaped the barrier created by the tongue shield aspirator. Hirsch, ¶ 71. To the extent that Solmetex contends that Black and AirBug do not disclose the perforations on a particular wall, it would have been obvious to include perforations on the anterior layer of Black in view of Hirsch, Isolite

The '329 Patent	Exemplary Disclosures in the Prior Art
	Mouthpiece, or Park, as Hirsch and Isolite Mouthpiece have perforations on both the anterior and posterior flaps. Including additional perforations would improve suction, area of suction, and therefore, patient comfort.
30[a] An isolation mouthpiece for use with a suction system in a dental procedure, the mouthpiece comprising:	To the extent the preamble is limiting, each of the prior art references discussed herein are isolation mouthpieces for use with a suction system in a dental procedure.
30[b] a main body portion having a first end and a second end, the main body portion including:	Black teaches a tongue shield aspirator 340 having a first flap 340a that retracts a patient's tongue and a second flap 340b that retracts a patient's cheek. Black, 14:1-9. The first flap 340a is a main body. As shown, the first flap 340a has a first end (left end in FIG. 23A below) and a second opposite end (right end in FIG. 23B below). Annotated FIG. 23A below shows that the second end is narrower than the first end.  FIG. 23A AirBug Mouthpiece discloses the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	
30[c] a first wall having a first edge and a second edge extending from the first end of the main body portion towards the second end of the main body portion, the first wall including a first plurality of perforations formed adjacent to and extending along a portion of the first edge and a second plurality of perforations formed adjacent to and extending along a portion of the second edge,	Black teaches that the first flap 340a includes an anterior layer 348b. Black, 14:25-30. A PHOSITA would consider this to be a first wall. FIG. 23A of Black shows that the anterior layer has a shape defined by multiple edges, and that the anterior layer 348b extends from the first end to the second end.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 23A AirBug Mouthpiece likewise teaches a first wall (notably, under Solmetex's construction for infringement, it does not appear to matter which wall is the first wall and which wall is considered the second wall):

The '329 Patent	Exemplary Disclosures in the Prior Art
	 Black also teaches a tongue shield aspirator having first and second pluralities of holes (perforations) formed along first and second edges of the first wall, respectively. Black, FIG. 4C.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 4C AirBug does not disclose a plurality of holes formed along a first and second edge of the first wall. However, to the extent that Solmetex contends that neither Black nor AirBug disclose the proper perforations on the proper walls, it would have been obvious to include perforations on the anterior layer of Black or AirBug in view of Park, Hirsch, or Isolite, as each reference has perforations on both the anterior and posterior flaps:

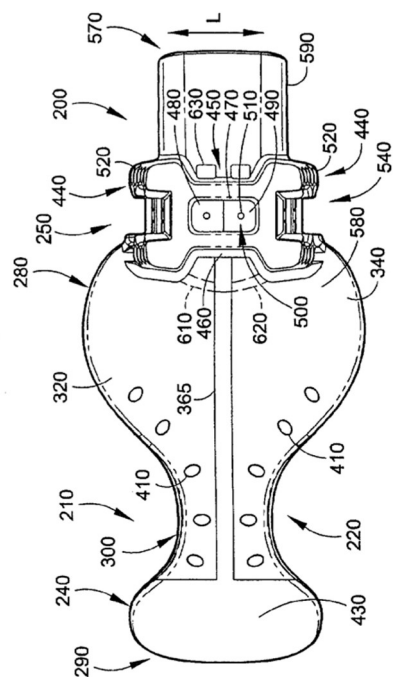


FIG. 19E

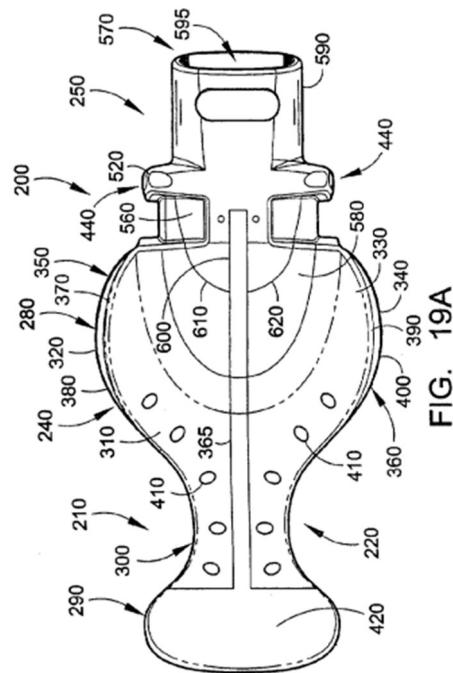
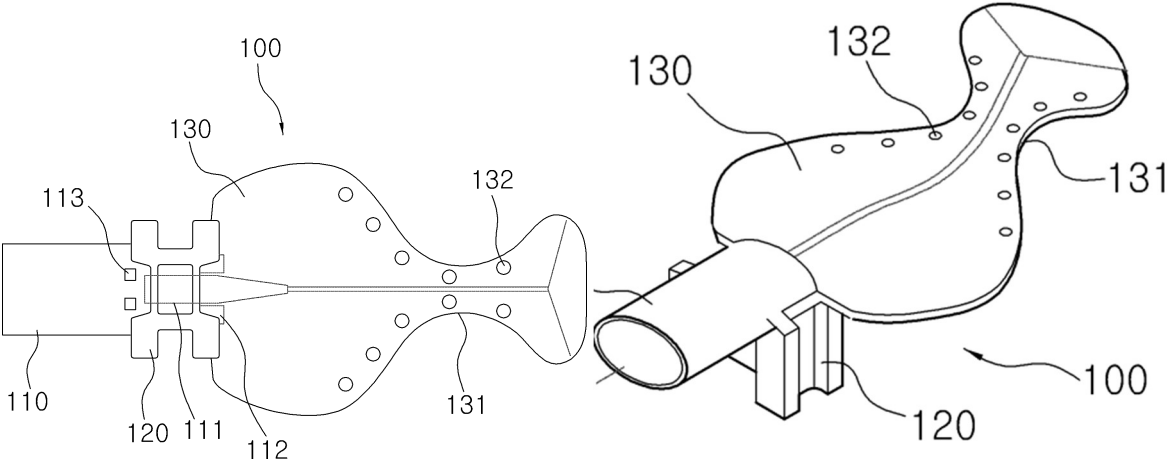
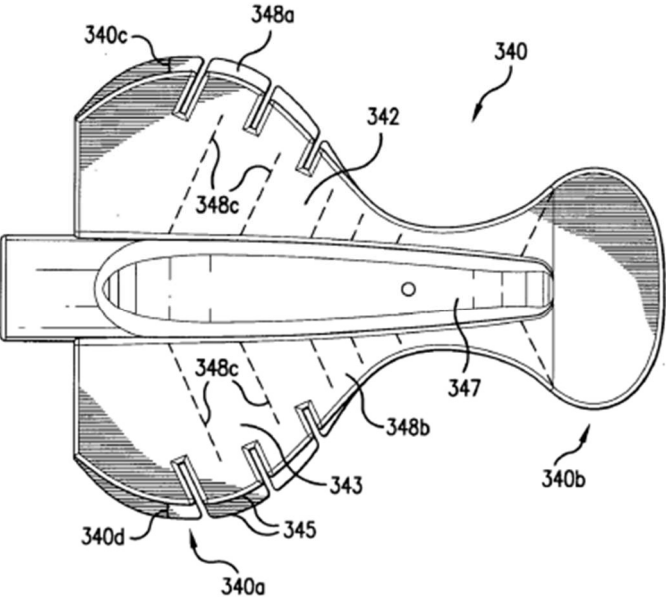


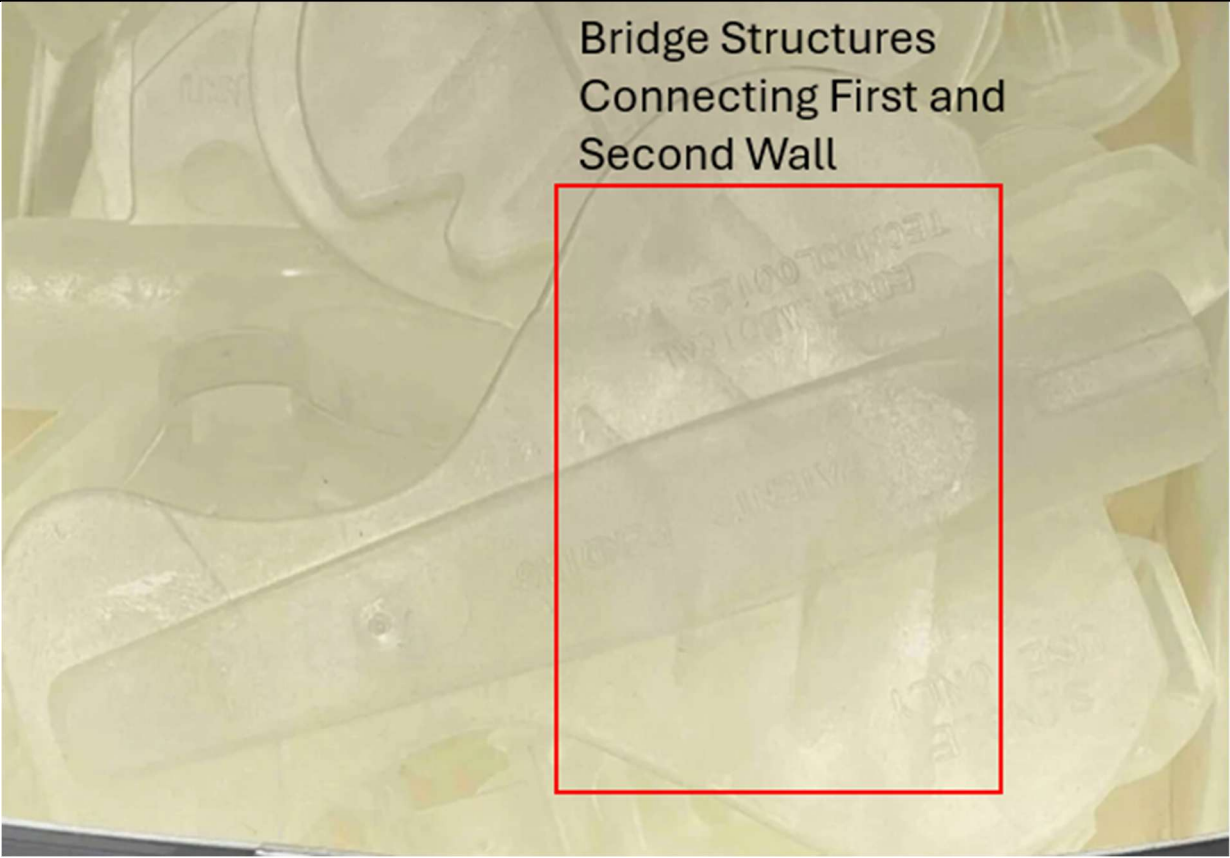
FIG. 19A

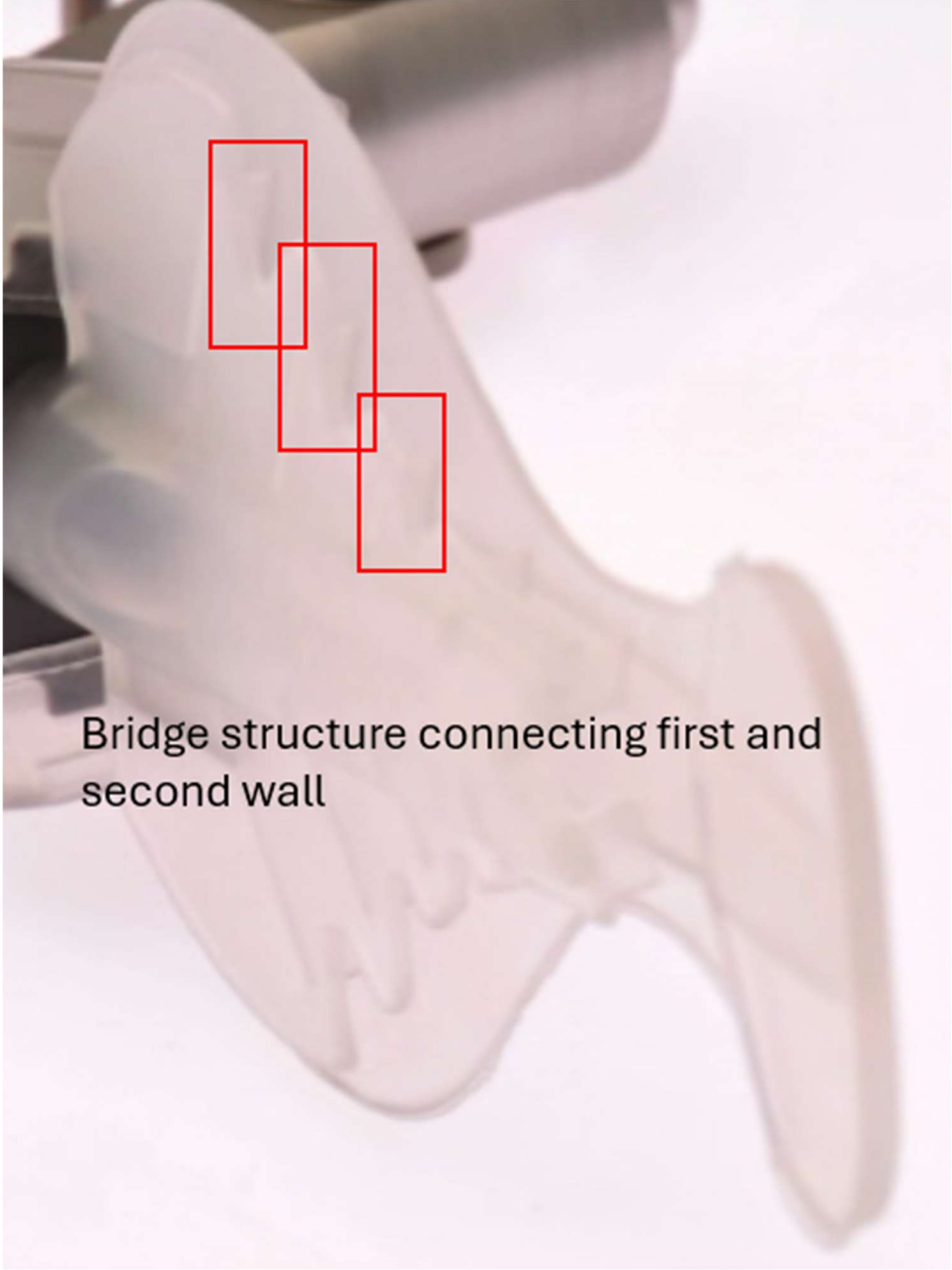
Isolite Mouthpiece discloses the same:

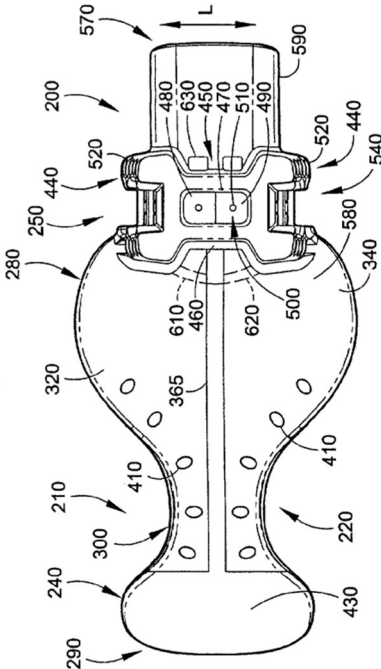
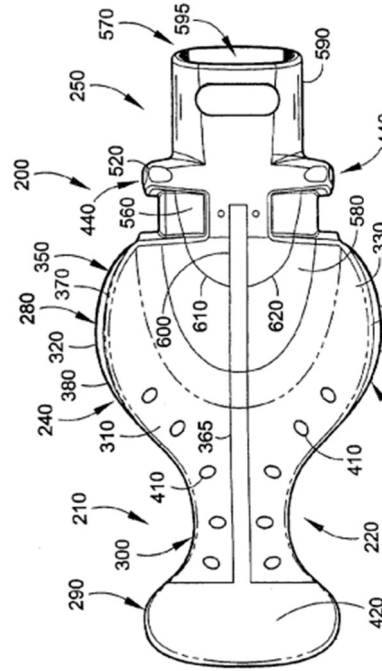


The '329 Patent	Exemplary Disclosures in the Prior Art
	Park also discloses the same: 
30[d] a second wall having a third edge and a fourth edge extending from the first end of the main body portion towards the second end of the main body portion, the second wall including a third plurality of perforations formed adjacent to and extending along a portion of the third edge, and a fourth plurality of perforations formed adjacent to and extending along a portion of the fourth edge, wherein the second wall further includes a plurality of protrusions	As discussed above in limitation 1[f], Black and AirBug disclose “wherein the second wall further includes a plurality of protrusions extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs:”

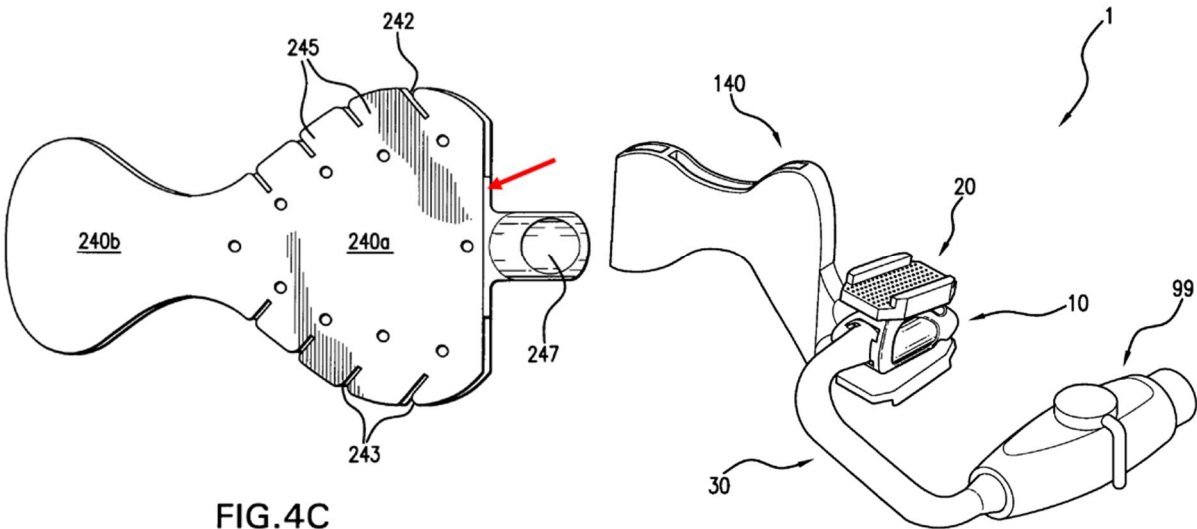
The '329 Patent	Exemplary Disclosures in the Prior Art
extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs, and wherein the first wall and the second wall are shaped such that the first edge of the first wall corresponds to the third edge of the second wall and the second edge of the first wall corresponds to the fourth edge of the second wall, and	The transverse walls extend from an interior surface of the posterior flap 348a and to the anterior flap 348b (transverse walls shown dashed). Black, 14:21-47. Thus, the transverse walls are protrusions. <i>Id.</i>  FIG. 23A The AirBug Mouthpiece discloses the same:

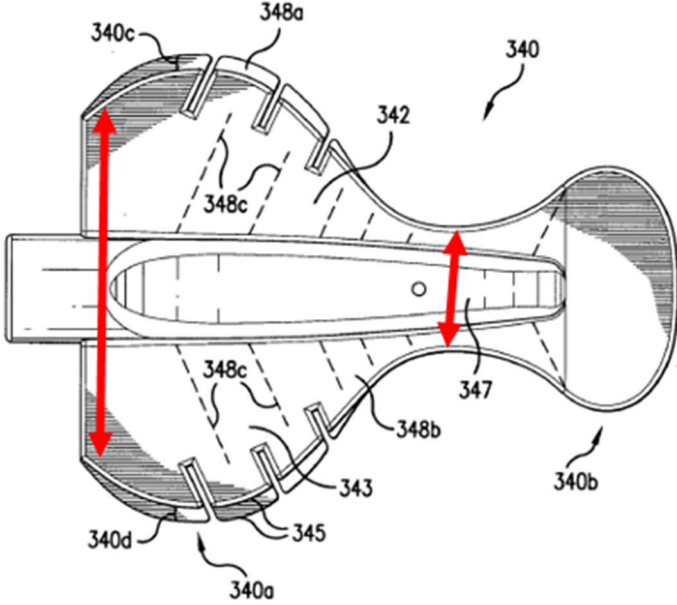
The '329 Patent	Exemplary Disclosures in the Prior Art
	Bridge Structures Connecting First and Second Wall 

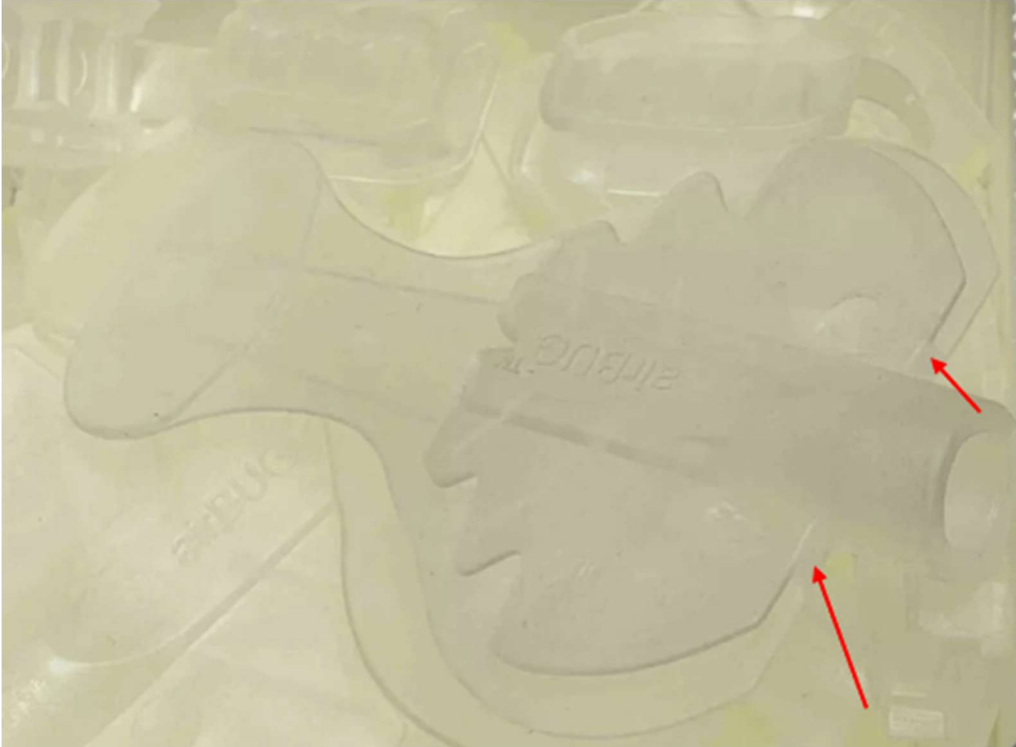
The '329 Patent	Exemplary Disclosures in the Prior Art
	 Bridge structure connecting first and second wall

The '329 Patent	Exemplary Disclosures in the Prior Art
	While Black and AirBug do not expressly teach that the posterior layer 348a (second wall) has third and fourth pluralities of perforations formed along third and fourth edges of the second wall, respectively, it would have been obvious to a PHOSITA to include such perforations in view of one or more of the skill of a PHOSITA, Hirsch, Isolite Mouthpiece, or Park, which, as discussed above, disclose perforations on both the first and second wall along the edges:  FIG. 19E  FIG. 19A Isolite Mouthpiece discloses the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	Park also discloses the same: It would have been obvious to a PHOSITA, to include perforations in the posterior layer 348a of Black or AirBug in view of Hirsch, Isolite Mouthpiece, or Park. A PHOSITA have been motivated to modify the posterior layer 348a of Black or AirBug to include the evacuation holes 410 improve the suction through the tongue shield aspirator

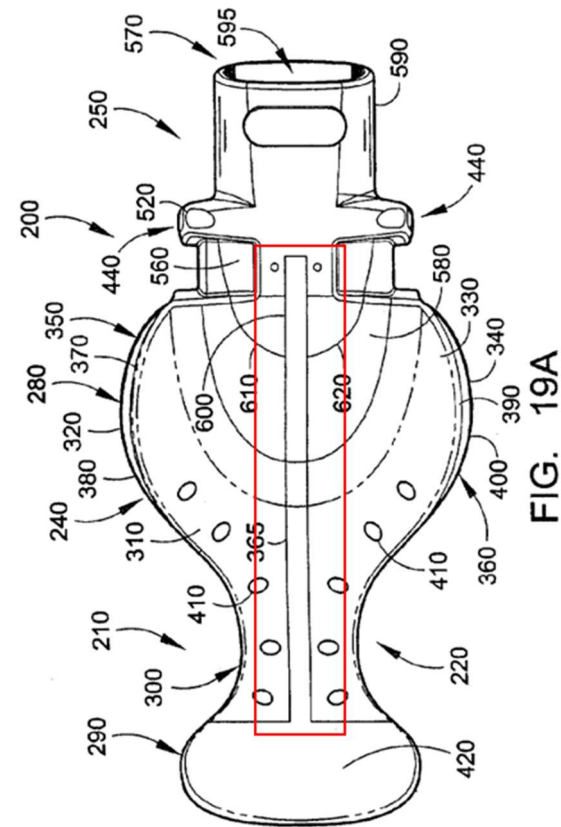
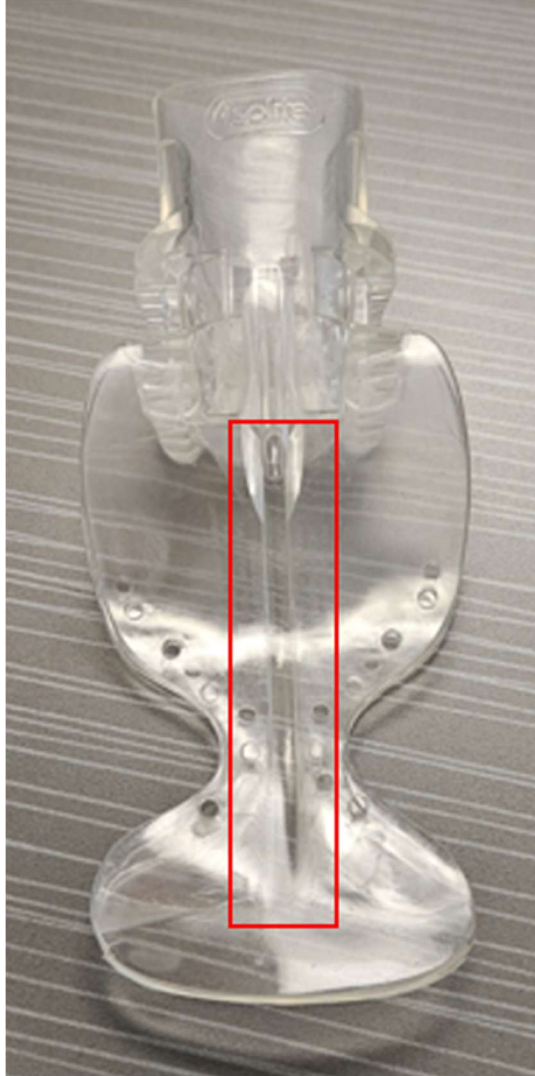
The '329 Patent	Exemplary Disclosures in the Prior Art
	340, and allow for suction through the posterior wall in case fluid escaped the barrier created by the tongue shield aspirator. Hirsch, ¶ 71.
30[e] a third wall connecting the first wall and the second wall such that the first wall is spaced from the second wall to define an inner cavity, wherein a portion of the first wall has a first width adjacent to the first end of the main body portion and a second width adjacent to the second end of the main body portion, wherein a portion of the second wall has a third width adjacent to the first end of the main body portion and a fourth width adjacent to the second end of the main body portion, wherein the first width is greater than the second width, and wherein the third width is greater than the fourth width;	See Limitation 1[e] and 1[d]. Black teaches a third wall (connecting wall) that connects the first and second walls.  FIG. 4C As shown, Black teaches that the anterior layer 348b and the posterior layer 348a are wider at one end.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 23A AirBug teaches the same:

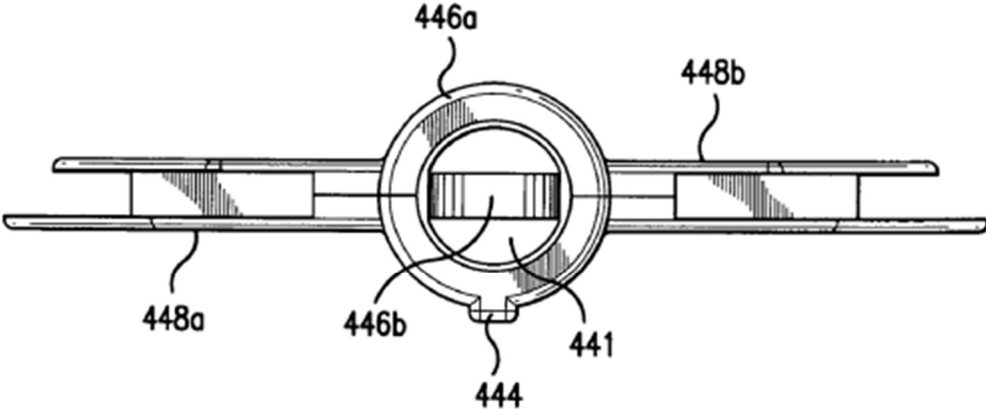
The '329 Patent	Exemplary Disclosures in the Prior Art
	 The image shows a close-up of a dental mold, likely for a dental appliance. The mold is made of a light-colored, translucent material. It features a central, irregularly shaped opening. Two red arrows are drawn on the image: one points to a small, rectangular feature on the right side of the central opening, and the other points to a small, rectangular feature on the left side of the central opening. The mold is set against a dark background.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex contends that neither Black nor AirBug disclose a connecting wall, Hirsch, Isolite Mouthpiece, and Park also disclose such a connecting wall:

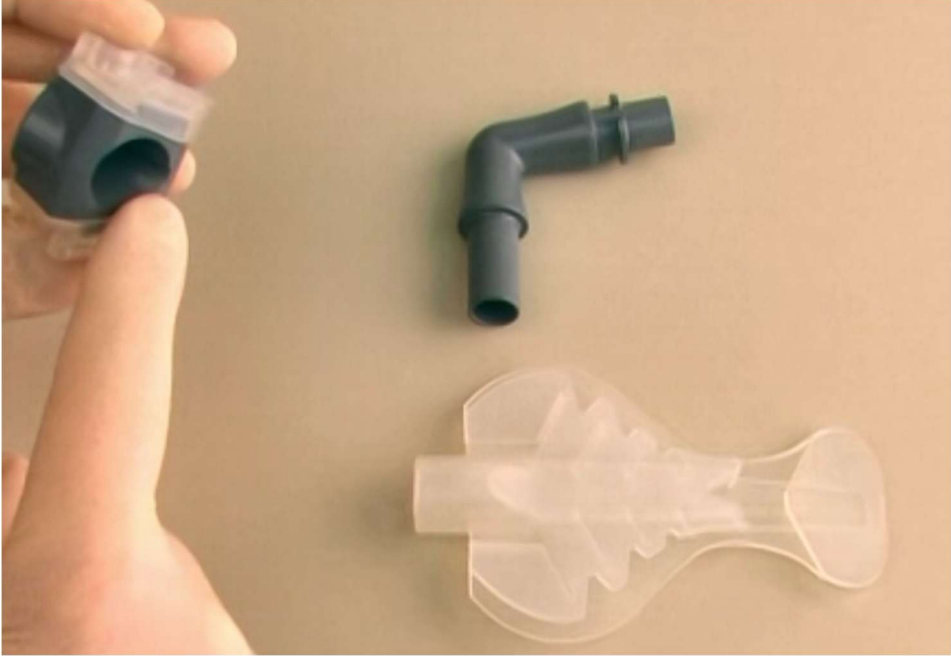
The '329 Patent	Exemplary Disclosures in the Prior Art
	FIG. 19D Under Solmetex's construction of connecting wall in its infringement contentions, Hirsch and Isolite Mouthpiece also disclose a central spine that Solmetex considers to be a connecting wall:



It would have been obvious to include the various connecting walls to provide additional structural integrity to the mouthpiece. Further, to the extent that there are minor differences between the length of the connecting wall, it would have been obvious to extend the wall across the entire hollow neck side. Such a change would just be a change in the dimensions or proportions of the wall. MPEP 2144.04.

The '329 Patent	Exemplary Disclosures in the Prior Art
30[f] a suction connector portion extending from the first end of the main body portion, the suction connector portion including: a generally tubular conduit including: an opening extending through the conduit and in fluid communication with the inner cavity, the opening being configured to receive a vacuum portion of the suction system therein, and a cutout configured to engage a protrusion on the suction system to aid in coupling the mouthpiece to the suction system;	Black teaches a suction connector 446 with cutout 441 configured to interlock with corresponding protrusion 332 of a vacuum adapter, wherein a shape of the cutout follows a shape of a shield logo.  FIG. 24D

The '329 Patent	Exemplary Disclosures in the Prior Art
	FIG. 22A Further, Black teaches a “lock-and-key locking mechanism” that interlocks the bite member 310 and the evacuation tube 330. Black, 13:16-67. “[T]he lock-and-key mechanism ensures that the evacuation tube [i.e., vacuum source] will not detach from the bite member during use...” Black, 13:57-59. This is exactly, or at worst an obvious variation of, what claim 6 describes. AirBug Mouthpiece discloses the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex contends that neither Black nor AirBug disclose a shield shaped cutout, Ascentcare notes that shields are commonly circular, and Solmetex does not specify any specific shield in its specification. If Solmetex argues that Black or AirBug does not teach a locking mechanism of the suction connector, specifically, it would be obvious to include a locking mechanism on the suction connector in view of Hirsch. Hirsch discloses a connection section 570 (suction connector) that extends from the retractor 240 and attaches to the vacuum-only adapter 230 to deliver suction to the intraoral device. Hirsch, ¶ 89, FIG. 19E. The connection section 570 includes a tube 590 having slots 630 that retain corresponding retention barbs on the vacuum-only adapter 230. Hirsch, ¶ 90, FIG. 19E. The slots are 630 a locking mechanism, in the form of a hole (i.e. cut out), formed on the suction connector of a mouthpiece and configured to receive corresponding protrusions from a vacuum adapter.

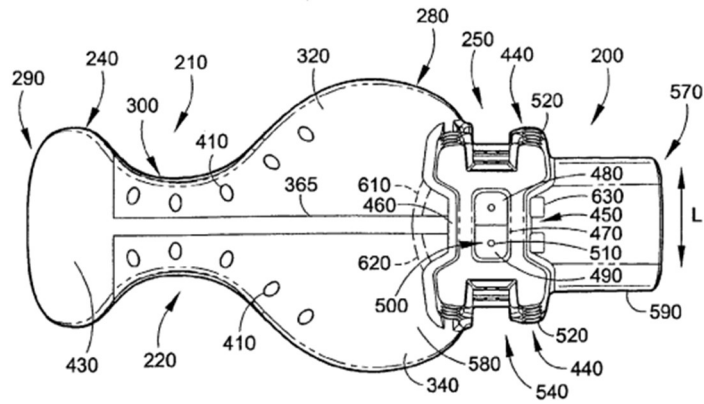
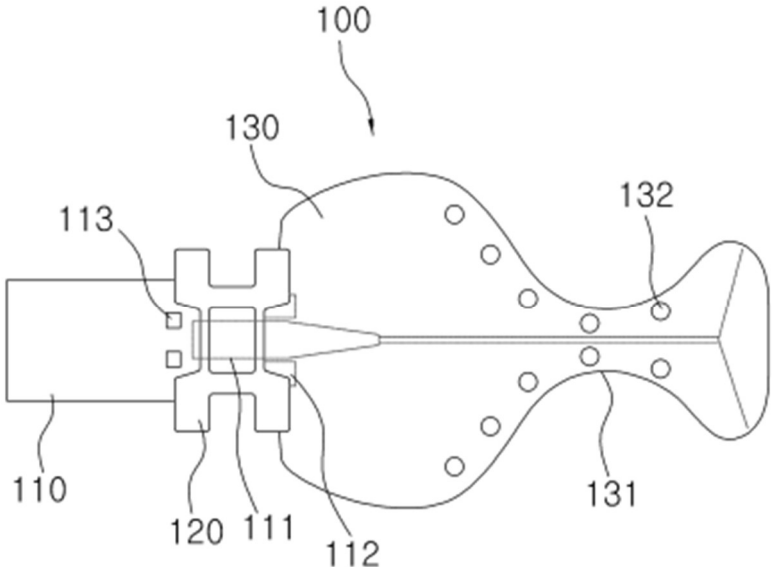


FIG. 19E

Isolite teaches the same:

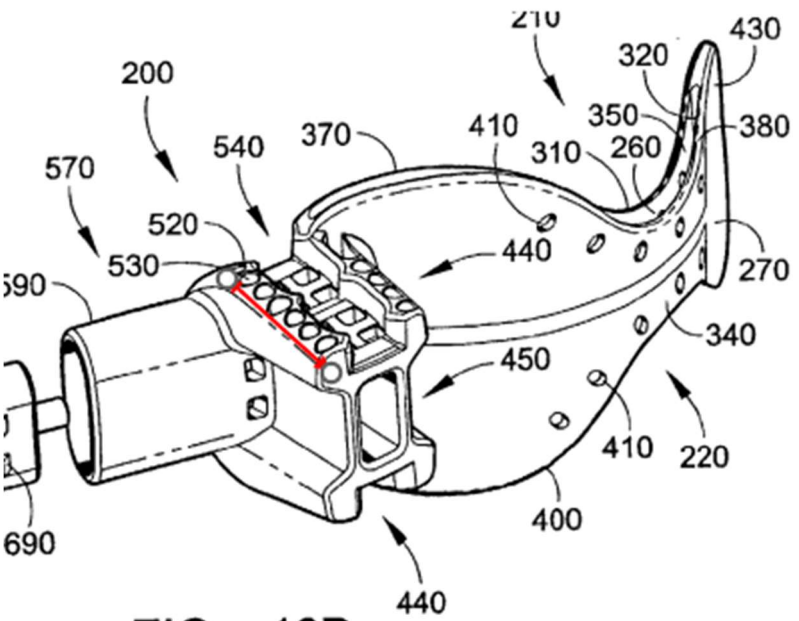


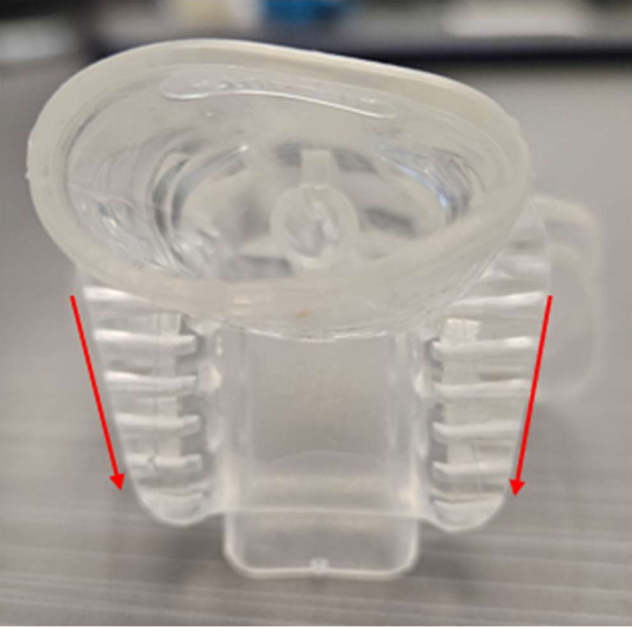
Park teaches the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	 It would have been obvious to a PHOSITA to modify Black or AirBug's suction connector to include Hirsch, Isolite, or Park's slots 630 at least to make a more secure connection between the mouthpiece and vacuum source. Black, 16:1-7. In fact, Black points out how important it is to have a secure connection to the vacuum source. Black, 13:57-59. Holes formed on the suction connector that accept projections on the vacuum tube are merely an obvious variant of Black's lock-and-key mechanism, since it is just choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success. MPEP 2143(I)(E). To the extent that Solmetex contends that none of the references disclose a "shield shape," Ascentcare further notes that the USPTO has already noted that "having a particular shape for the cutout is a matter of choice in which a person of ordinary skill in the art would have found obvious by the absent [<i>sic</i>] of persuasive evidence in the present application, that the particular configuration of the claimed shape of the cutout is significant." <i>See</i> Prosecution History '329 Patent at Office Action 9/23/2023, page 11, ¶ 32. Changing the slots 630 from rectangular to a "shield" shape is obvious. MPEP 2144.04(IV)(B). The Supreme Court has likewise found modifications on one system to fit another on the market to be obvious to a PHOSITA. <i>KSR Int'l Co. v. Teleflex Inc.</i>, 550 U.S. 398, 424, 127 S. Ct. 1727, 1744, 167 L. Ed. 2d 705 (2007) ("The

The '329 Patent	Exemplary Disclosures in the Prior Art
	interaction of multiple components means that changing one component often requires the others to be modified as well. Technological developments made it clear that engines using computer-controlled throttles would become standard. As a result, designers might have decided to design new pedals from scratch; but they also would have had reason to make pre-existing pedals work with the new engines. Indeed, upgrading its own pre-existing model led KSR to design the pedal now accused of infringing the Engelgau patent.”). Accordingly, to the extent that Black or AirBug do not disclose a shield shaped cutout, it would have been obvious to modify Black or AirBug in view of Hirsch, Isolite, or Park to include a shield shaped cutout.
30[g] a mouth prop including a first side and a second side that are inwardly tapered from a top surface of the mouth prop towards a bottom surface of the mouth prop, the first side and the second side each including a plurality of ridges; and	This limitation requires a mouth prop that has a smaller posterior surface than the anterior surface. Almost all bite blocks are designed in this way. This design follows the natural shape of the mouth when it is open, because the jaw is a hinge, which any PHOISTA would understand based on very basic dental anatomy. Black teaches a bite member 310 (mouth prop) having a top side 314 and a bottom side 316, and Black teaches that the sides lie in divergent planes (<i>i.e.</i>, taper) Black, 11:61-12:9. As shown in FIGS. 19 and 21A, Black illustrates that the bite member 310 includes a bite grip 320 with a plurality of ridges on each side of the bite grip 320. FIG. 19 FIG. 21A AirBug discloses the same tapering mouthpiece with ridges:

The '329 Patent	Exemplary Disclosures in the Prior Art
	The same tapering, ridged, bite blocks are disclosed by Hirsch, and Isolite Mouthpiece.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 18B

The '329 Patent	Exemplary Disclosures in the Prior Art
	
30[h] a cheek retractor portion having a first cheek-retractor end coupled to the second end of the main body portion and a second cheek-retractor end, the first cheek-retractor end and the second cheek-retractor end each having rounded edges.	Black teaches a second flap 340b that functions as a cheek retractor and is formed on the opposite side of the tongue shield aspirator 340 from the neck having rounded edges 346. Black, 14:5-9, FIG. 23A. As shown in FIG. 23A the second flap 340b is connected to, and expands outwardly away from, the second end of the first flap 340a.

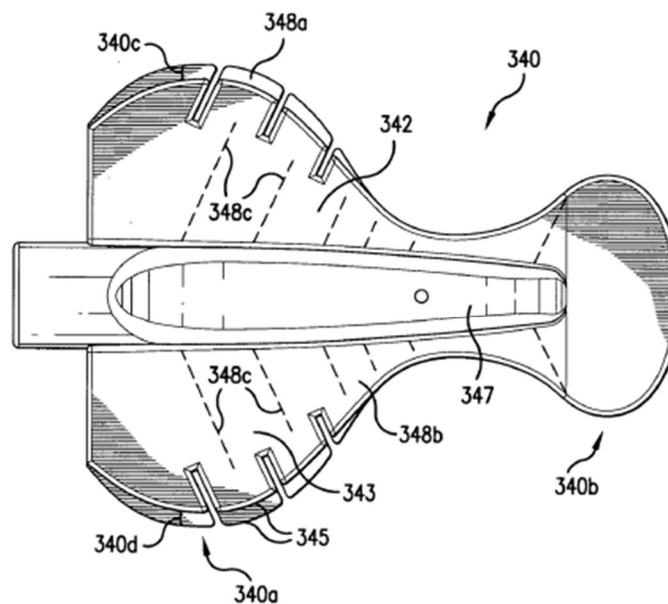
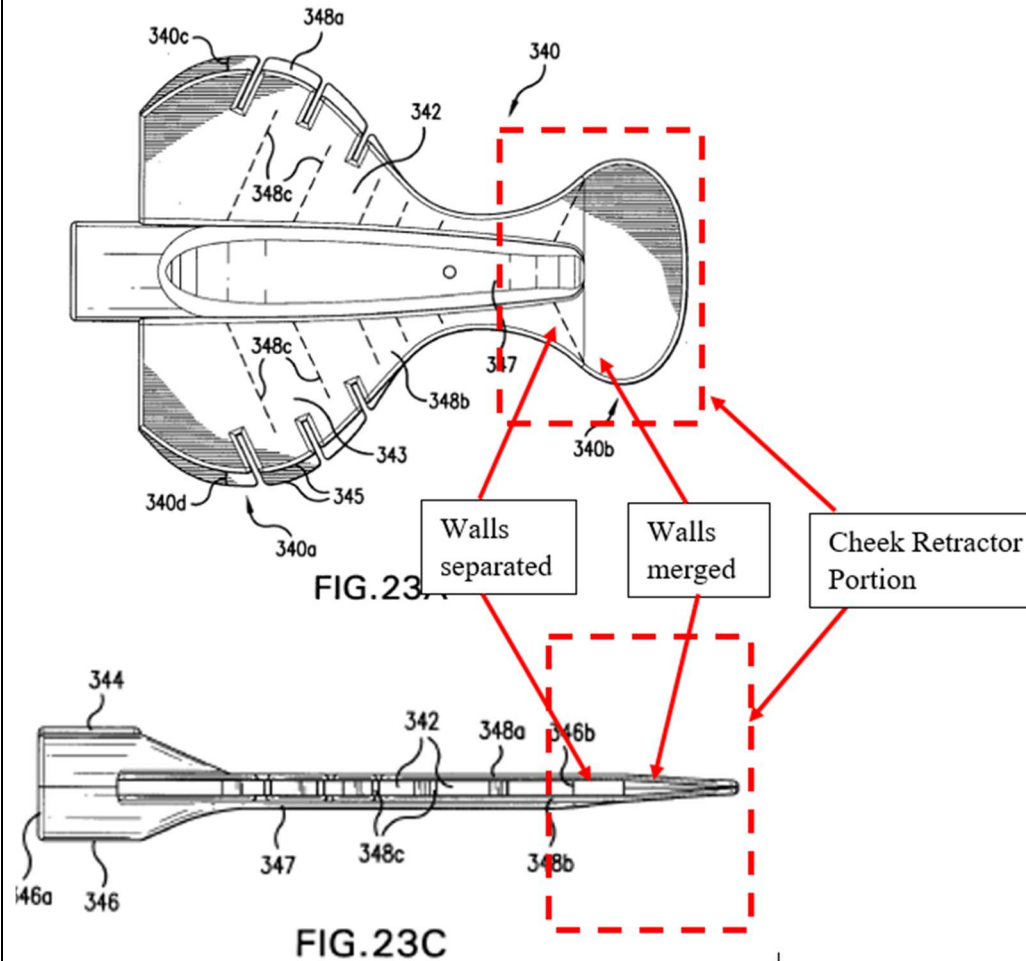
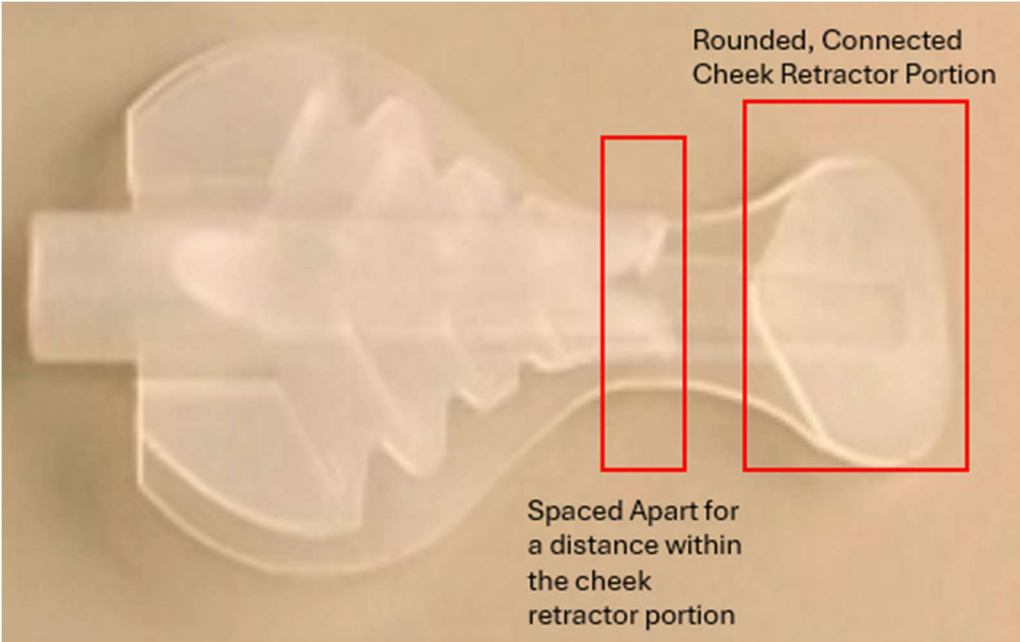


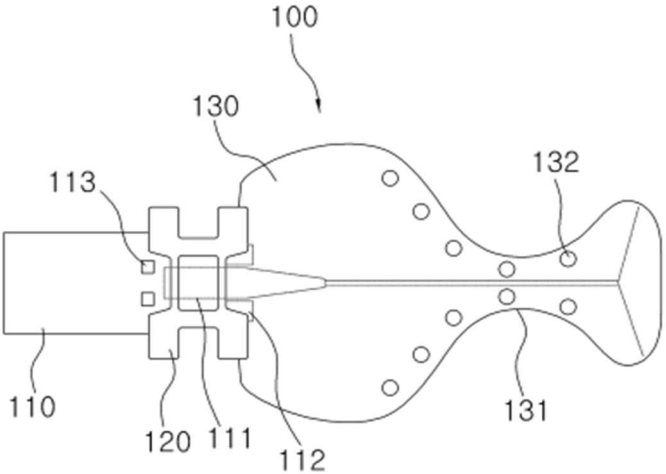
FIG. 23A

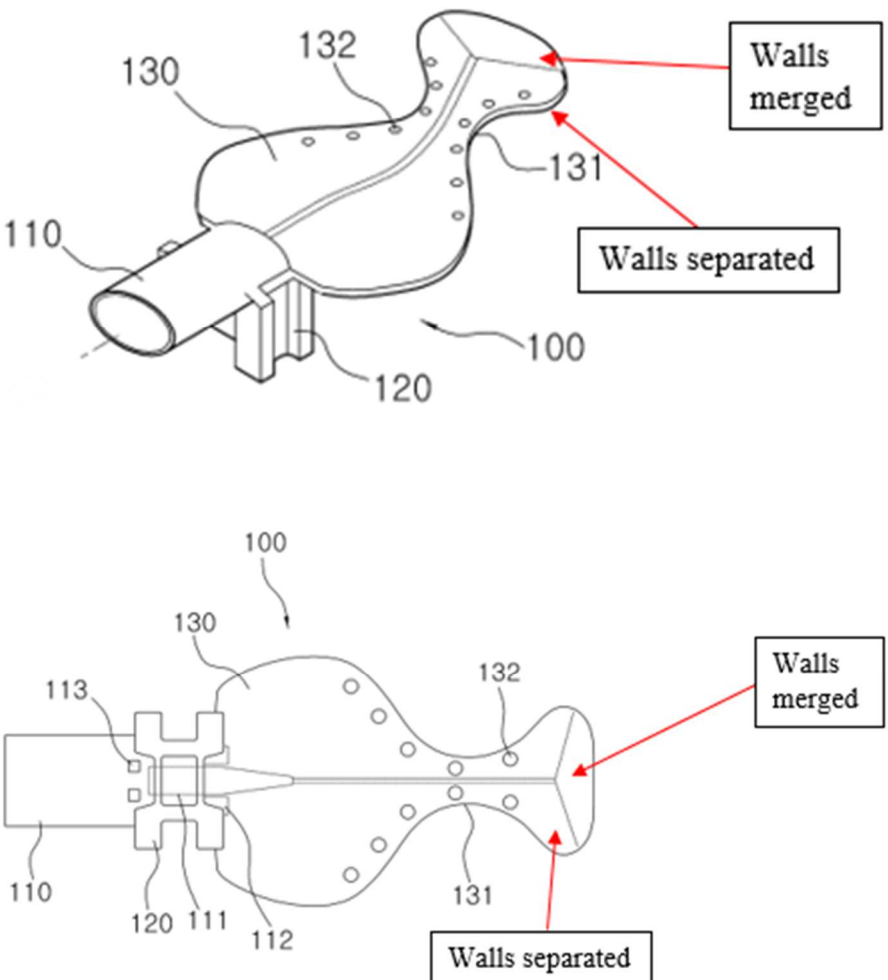
FIG. 23C of Black illustrates that both the posterior and anterior layers 348b, 348a transition into the second flab 340b (cheek retractor). For a short distance after the narrowest portion of the isthmus (349) the layers 348a, 348b remain separated from one another before merging together to form the cheek retractor. Annotated FIG. 23C (below) illustrates that the posterior layer 348a and the anterior layer 348b are separated in the cheek retractor portion (dashed area) and then merge together in the dashed area.

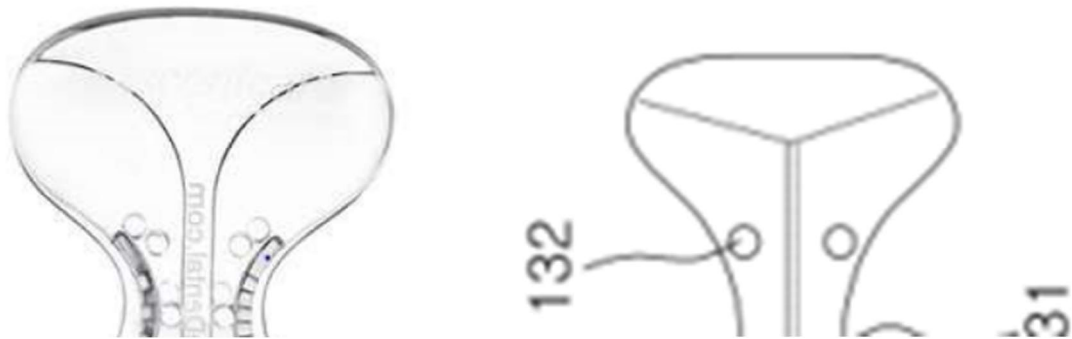


Black explains: “In embodiments of the invention, the upper opening defined by the space between the top edges of the anterior and posterior layers, and the lower opening defined by the space between the bottom edges of the anterior and posterior layers may extend through the transition section 349 (as shown, e.g., in FIG. 23C) *as well as at least a portion of the distal flap 340b.*” Black, 15:14-20. This is exactly how the cheek retractor portion is claimed in claim 1.

The '329 Patent	Exemplary Disclosures in the Prior Art
	If Solmetex tries to argue that the dashed area above is not the “cheek retractor portion,” it should be noted that the specification defines the cheek retractor portion 130 as the area where the mouthpiece widens again after the narrow, “rectangular area.” ‘329 Patent, FIG. 1B. In fact, the specification specifically says that the narrow rectangular area is part of the “main body portion.” ‘329 Patent, 4:14-21, 5:15-20. Therefore, the “cheek retractor portion” in Black must be the point where the mouthpiece begins to widen again after the narrow isthmus 349. This is entirely in-line with both the claim language (“a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end”) and the specification. Additionally, Black defines the transition section 349 as “the narrowest section of the tongue shield aspirator,” and the distal flap (cheek retractor) as the portion beyond the transition section. Black, 14:1-20. Under this construction, AirBug teaches the same:  To the extent that Solmetex contends that Black does not practice limitation 9[h], Black or AirBug Mouthpiece in combination with one or more of the skill of a PHOSITA, Park, Hirsch, and Isolite Mouthpiece teaches limitation 9[h].

The '329 Patent	Exemplary Disclosures in the Prior Art
	Park teaches that the concave section 131 (narrower second end) connects to a cheek retractor, which is formed to the right of the concave section and expands outwardly away from the second narrower end. Park, ¶ 31, FIGS. 1-3.  Park teaches two walls separated from each other to form an inner cavity anywhere holes 132 exist. FIG. 2 shows holes 132 are present right up until the two lines that form a “Y-shape” near the end of the mouth prop, which means that the first and second walls that transition into the cheek retractor portion remain separated for a distance within the cheek retractor portion. Past the “Y-shaped” lines, the first wall connects to the second wall, such that they are no longer separated. <i>Id.</i>

The '329 Patent	Exemplary Disclosures in the Prior Art
	 Additionally, Park's design is basically identical to the cheek retractor that Solmetex appears to assert as infringing this limitation. <i>Id.</i>

The '329 Patent	Exemplary Disclosures in the Prior Art
	 Likewise, Hirsch and the Isolite Mouthpiece disclose the same rounded cheek retractor and connection:

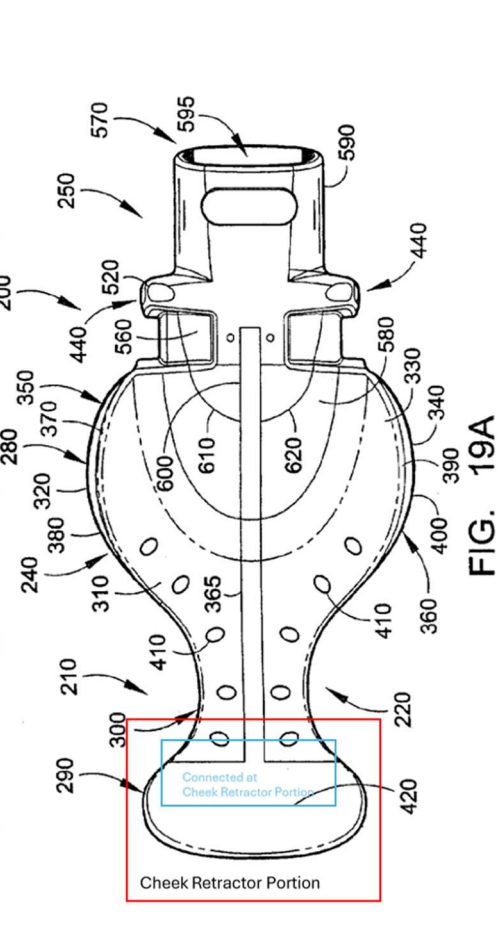
The '329 Patent	Exemplary Disclosures in the Prior Art
	 

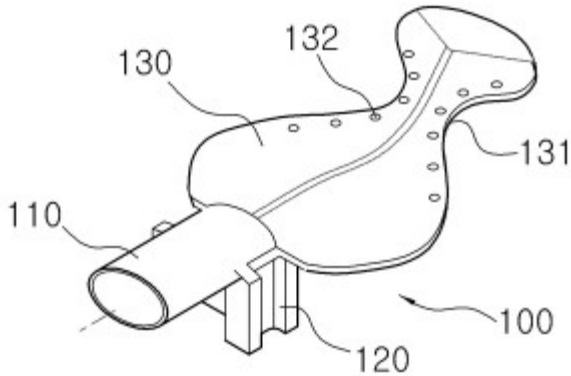
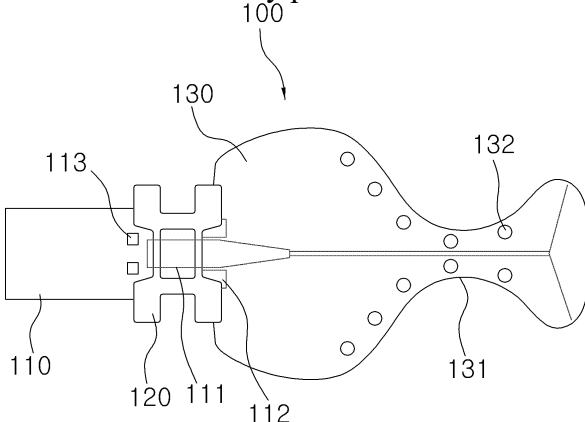
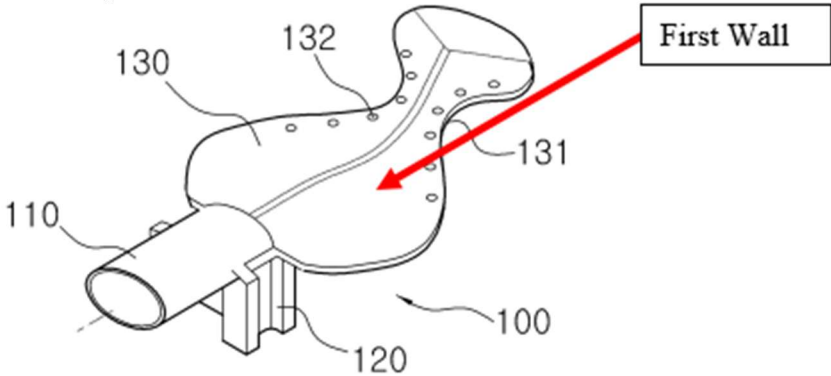
EXHIBIT E-3 (Park in View of One or More of the Skill of a PHOSITA, Black, AirBug, Hirsch, Isolite Mouthpiece, Baughan, Johnson)
Initial Invalidity Chart for U.S. Patent No. 12,011,329

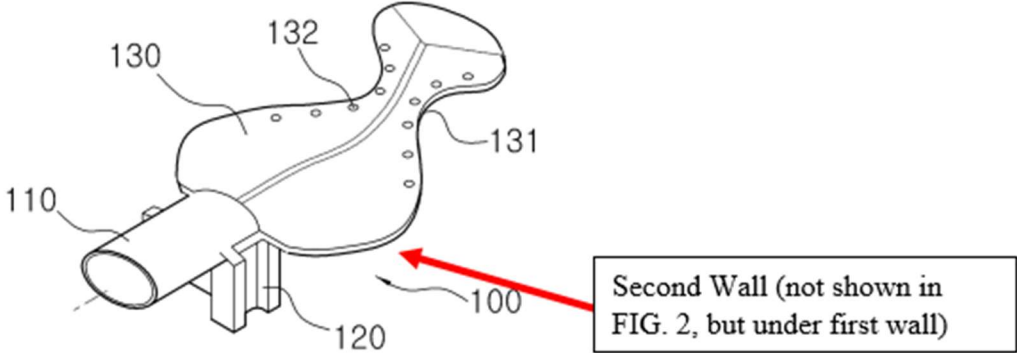
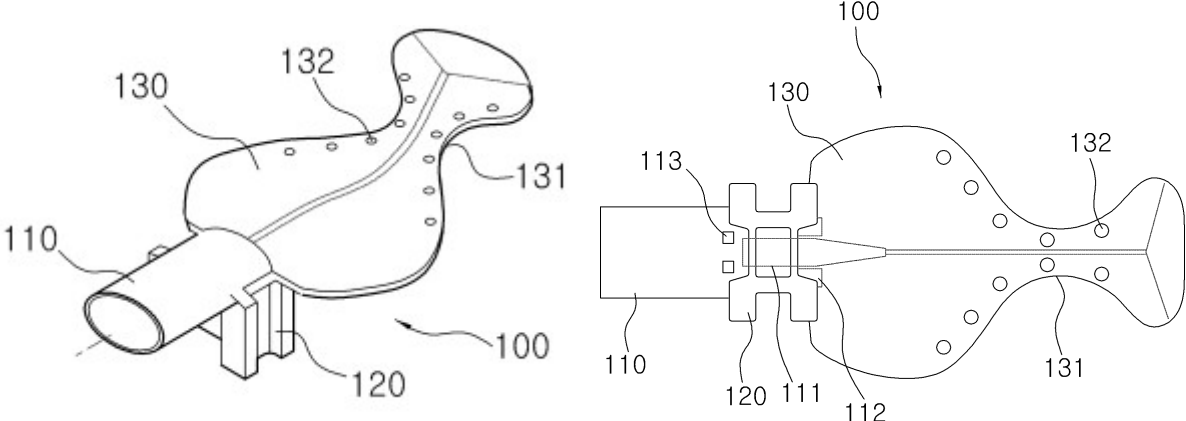
Ascentcare incorporates by reference the cover pleading to its Initial Invalidity Contentions. These Initial Invalidity Contentions, including these claim charts, are not an admission regarding claim scope or the accused products, and, in particular, that the accused products, including any current or 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 pre-AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, Park, Black, Hirsch, Baughan, and Johnson were patented or printed in a publication more than one year prior to the filing date of the application, 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 more of the references identified in the cover pleading and/or one or more of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 12,011,329.

Pursuant to pre-AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, the AirBug Mouthpiece² and the Isolite Mouthpiece were on sale or in public use more than one year prior to the priority date of the '329 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 more of the references identified in the cover pleading and/or one or more of the references from the other claim charts attached as exhibits to these contentions, U.S. Patent No. 12,011,329.

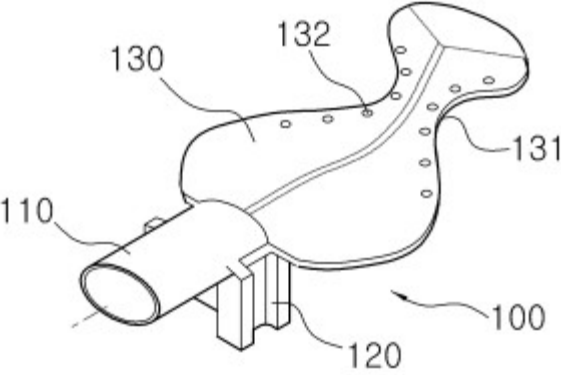
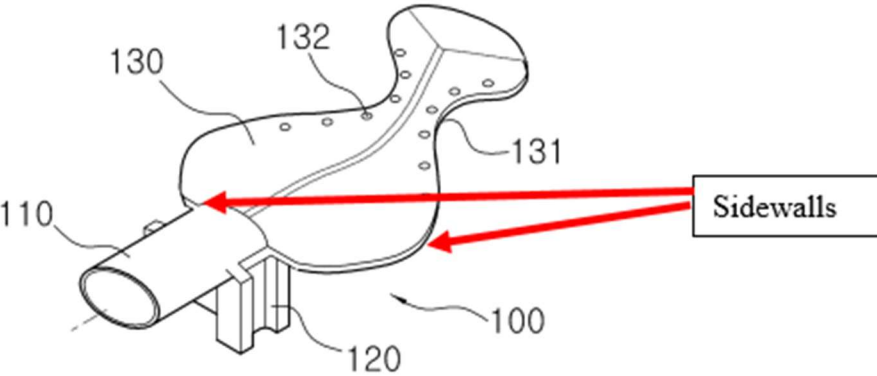
² It is Ascentcare's understanding that several of the embodying products discussed herein may have multiple embodiments over the years. Discovery is ongoing, and Ascentcare has issued subpoenas seeking the prior art embodiments. To the extent that Ascentcare currently relies on more current embodiments 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 the AirBug Mouthpiece is a product embodying Black, and thus, any of the references to Black likewise support the AirBug Mouthpiece, and vice versa. Likewise, the same analysis applies to the Isolite Mouthpiece and Hirsch.

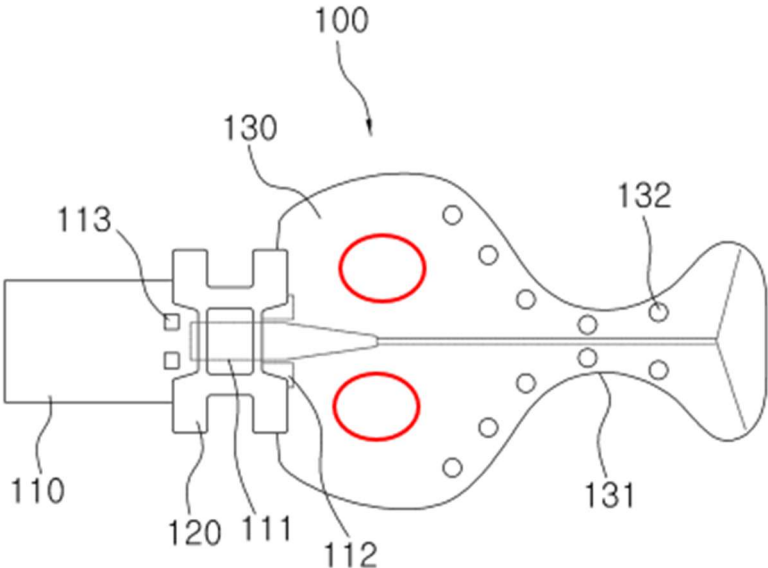
The '329 Patent	Exemplary Disclosures in the Prior Art
1[a] A mouthpiece comprising: 1[b] a main body having a first end opposite a second end that is narrower than the first end, the main body comprising:	To the extent the preamble is limiting, each of the prior art references discussed herein are mouthpieces Park discloses a mouth prop 100 having generally the same shape and configuration as the '329 Patent. Park, FIGS. 1-3. The mouth prop 100 has a tongue retractor 130, which is the wider portion of the mouth prop 100 that fits in the patient's mouth. Park, ¶¶ 25-26. The retractor 130 is the main body portion.   The tongue retractor 130 includes a first end nearest to the insertion port 110 and a second end nearest the concave area 131, which is narrower than the first end. Park, FIG. 3,
1[c] a first wall having a plurality of first edges and extending from the first end to the second end;	Park teaches that the tongue retractor 130 has a first wall (anterior wall best shown in FIG. 2) having a plurality of edges. Park, FIG. 2; The first wall extends from the first end near the insertion port 110 to the second end near the concave portion 131. <i>Id.</i> 

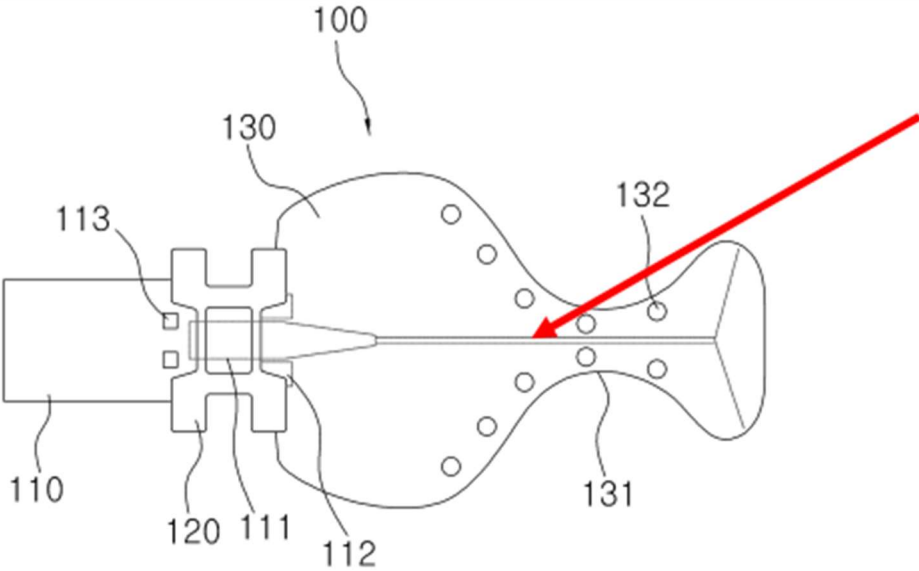
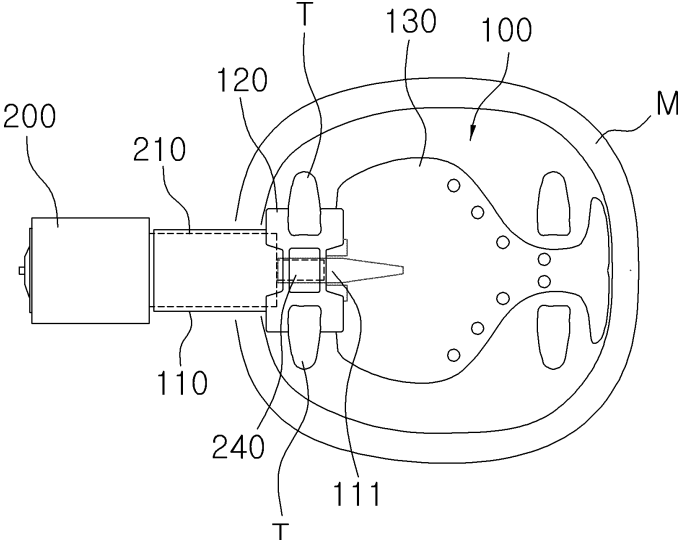
The '329 Patent	Exemplary Disclosures in the Prior Art
1[d] a second wall having a plurality of second edges and located at a distance from the first wall, the distance corresponding to an interior space between the first wall and the second wall, wherein the second wall also extends from the first end to the second end,	The tongue retractor 130 of Park has a second (posterior) wall that is exactly the same shape as the first wall. Park, FIG. 2-3. Thus, as shown in FIG. 3, the tongue retractor 130 of Park extends from the first end to the second end and includes a plurality of edges. <i>Id.</i>  Second Wall (not shown in FIG. 2, but under first wall) The second wall is spaced at a distance to the first wall because Park has an interior chamber and because of the existence of the sidewalls. The tongue retraction portion 130 defines an interior space. Park, ¶ 26. In fact, the tongue retractor 130 is a four-sided body with an anterior wall, a posterior wall, and two sidewalls that together enclose an interior open space where suction occurs. Park, FIG. 2. The interior space corresponds to the distance between the first and second wall.  A PHOSITA would recognize Park as an enclosed mouthpiece with sidewalls from FIGs. 1-3 of Park. FIG. 2 even illustrates the sidewalls extending into the insertion port 110, thereby clearly demonstrating their presence. Park illustrates a continuous sidewall around all edges of the tongue retractor 130, and that continuous edge extends onto the insertion port 110 and the tooth support section 120. <i>Id.</i> Thus, Park illustrates an isolation mouthpiece with sidewalls. Park, FIG. 2.

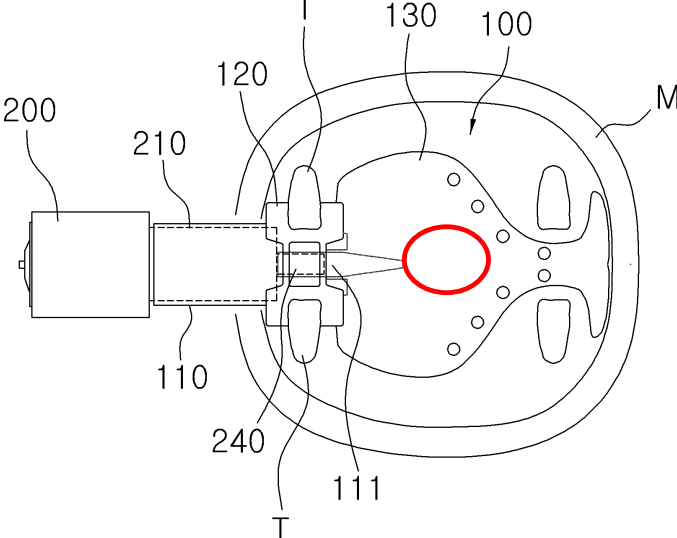
The '329 Patent	Exemplary Disclosures in the Prior Art
	The specification further supports this conclusion. As shown in FIG. 3, the mouth prop 100 includes two suction ports 112 formed in the hollow insertion port 110 and extending into the tongue retractor 130. Park, FIG. 3, ¶¶ 27-28; Park teaches that the insertion port 110 is hollow and only <i>one</i> end of the insertion port 110 is open. Park, ¶ 27-28. Park further teaches that the insertion port 110 has a central interior that includes a post fitting groove 111 and suction ports 112. <i>Id.</i> Because only one end of the insertion port 110 is open, Park teaches that the second end, where the suction ports 112 are formed (see Park, FIG. 2), is enclosed and extends into an interior space of the tongue retractor 130. Park, ¶ 26-31. Indeed, Park specifically teaches that the tongue retractor 130 extends from the insertion port 110. Park, ¶ 26. The suction ports 112 only extend partially into the tongue retractor 130, and the suction ports 112 do not extend to the through-holes 132 as a dedicated channel. Park, ¶ 26-31, FIG. 3. Additionally, Park fails to teach that any suction can occur through the sides of the mouth prop 100. Thus, a PHOSITA would understand that Park's mouth prop 100 has an interior open space that fluidly connects the holes 132 to the suction ports 112. Park, ¶¶ 30-31, FIG. 2. If the mouth prop 100 did not include an interior open space formed in the tongue retractor 130, then the holes 132 would serve no purpose, and the suction ports 112 would aspirate nothing. The existence of an interior chamber of the mouth prop is necessary to fluidly connect the suction ports 112 and the holes 132; otherwise Park would be inoperable to perform "suction of foreign substances in the oral cavity." Park, ¶ 10. Finally, Park depicts the suction ports 112 (and the socket 111) using a line of a lighter shade than the edges of the tongue retractor 130. Park, FIG. 3. This is likely because the suction ports are only partially visible through clear silicone, but indicating that they extend into an internal chamber of the tongue retractor 130. Park, ¶ 32. These differences in shading are clearer on a computer screen than a printed copy.

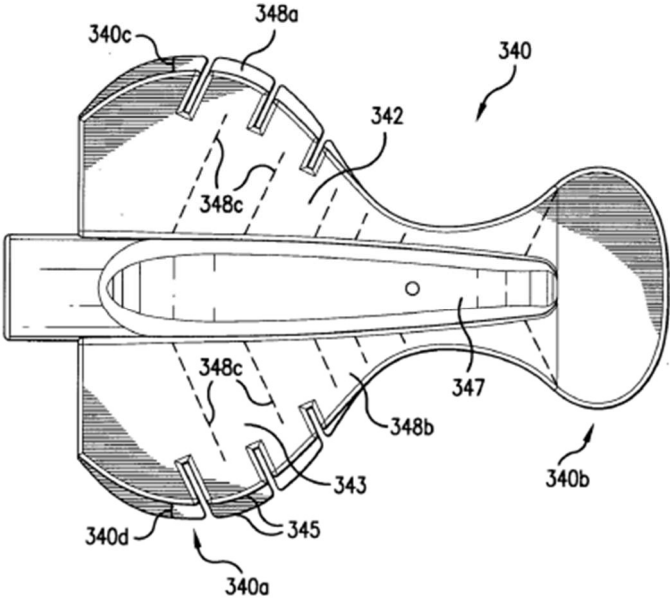
The '329 Patent	Exemplary Disclosures in the Prior Art
	Indeed, a PHOSITA would know that a mouth prop having through holes 132 that do not fluidly connect to the suction ports 112 would allow debris and fluid to pass through the through holes 132 and down a patient's throat, something a PHOSITA would know to avoid. EX1019, 4:16-21; If the suction connector 112 was not fluidly connected to the holes 132 through the tongue retractor 130 of the mouth prop 100, the suction port 112 would serve no purpose or be extremely ineffective, and a patient might choke or experience severe discomfort by the debris, fluid, etc. passing through the holes 132 during a dental procedure. Moreover, a PHOSITA would know that a dentist would position the mouth prop 100 in a patient's mouth such that the concave area 131 would wrap behind teeth on the side of the mouth where a dentist would operate. Park, ¶ 47, 31. FIG. 6; 2. This is because the whale tale end, opposite the suction connector 112, retracts the patient's cheek near a dental operation. Park, ¶ 31. If the through-holes 132 were not fluidly connected to the suction ports 112 through the tongue retractor 130, then the suction ports 112 of the mouth prop 100 of Park would be positioned at the furthest possible location in the mouth from the dental operation. A PHOSITA would know that suction should occur as close as possible to the operating area to maximize capture of debris, fluids, and aerosols. <i>Id.</i> The farther away suction is positioned from generated fluid, debris, blood, etc., the less powerful it becomes; meaning the suction would not effectively aspirate unwanted fluids and debris in the mouth. <i>Id.</i> In other words, a PHOSITA would understand that the mouth prop of Park fluidly connects the suction ports 112 to the holes 132 through an inner chamber of the tongue retractor 130 to guide and channel the suction applied through the suction ports. A PHOSITA would understand that the only logical reason a mouth prop configured to expel debris and fluid (Park, ¶ 28, 9) would include through holes 132 is to ensure that suction occurs through the holes 132 via a fluid connection

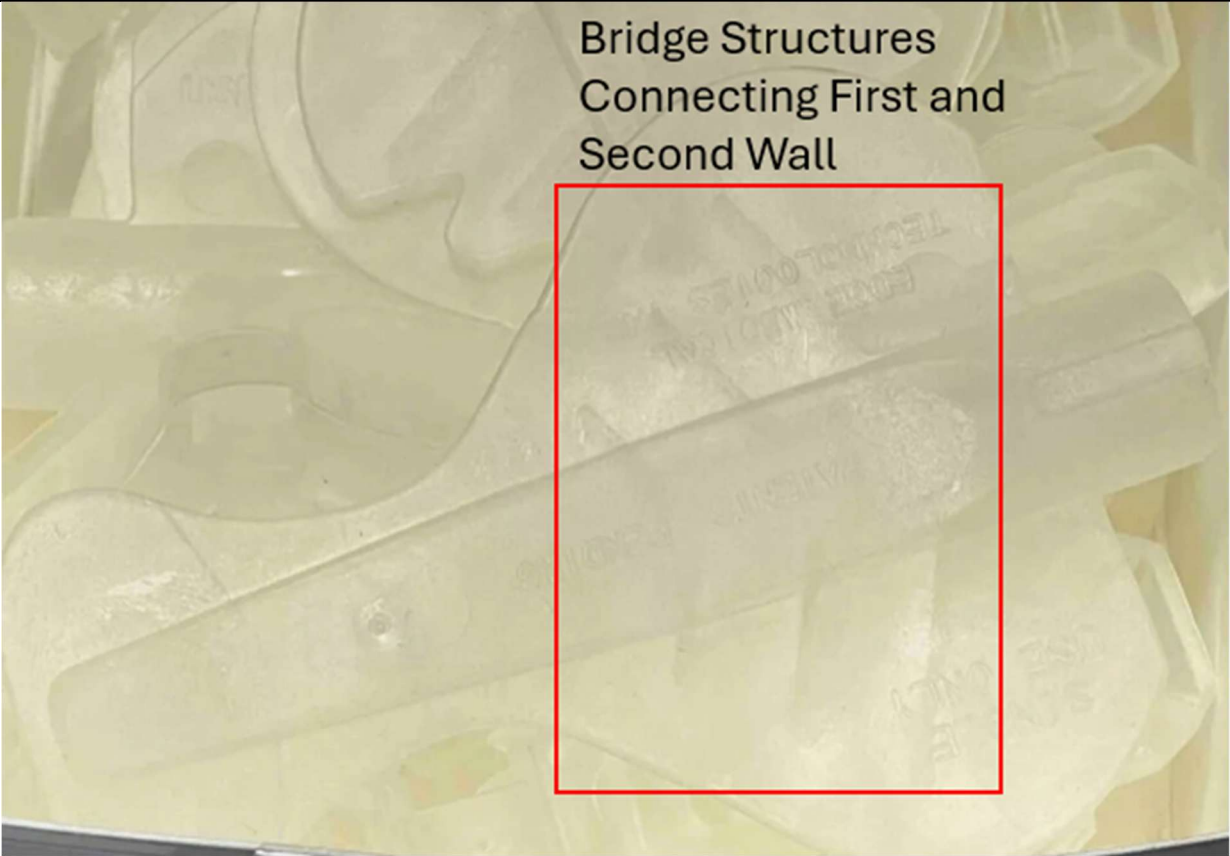
The '329 Patent	Exemplary Disclosures in the Prior Art
	with the suction ports 112, especially considering the holes 132 align with the location where a dental operation occurs. The only way the holes 132 would have an efficient fluid connection with the suction ports 112 is if the mouth prop 100 included an inner chamber through the mouth prop. <i>Id.</i> Thus, Park, at worst, implicitly teaches a four-sided mouth prop formed as a pocket with an inner chamber formed between the four walls. <i>Id.</i> Thus, Park teaches a tongue retractor 130 extending from the insertion port 110 to the cheek retractor near the concave portion 131 and having an interior open space formed in the tongue retractor 130 between the suction ports 112 and the holes 132. <i>Id.</i> 
1[e] a connecting wall that connects one of the first edges of the first wall to one of the second edges of the second wall across the distance between the first wall and the second wall, and	As discussed above, Park teaches a sidewall (“connecting wall”) that connects all edges of the anterior wall and the posterior wall. Park, FIG. 2. 

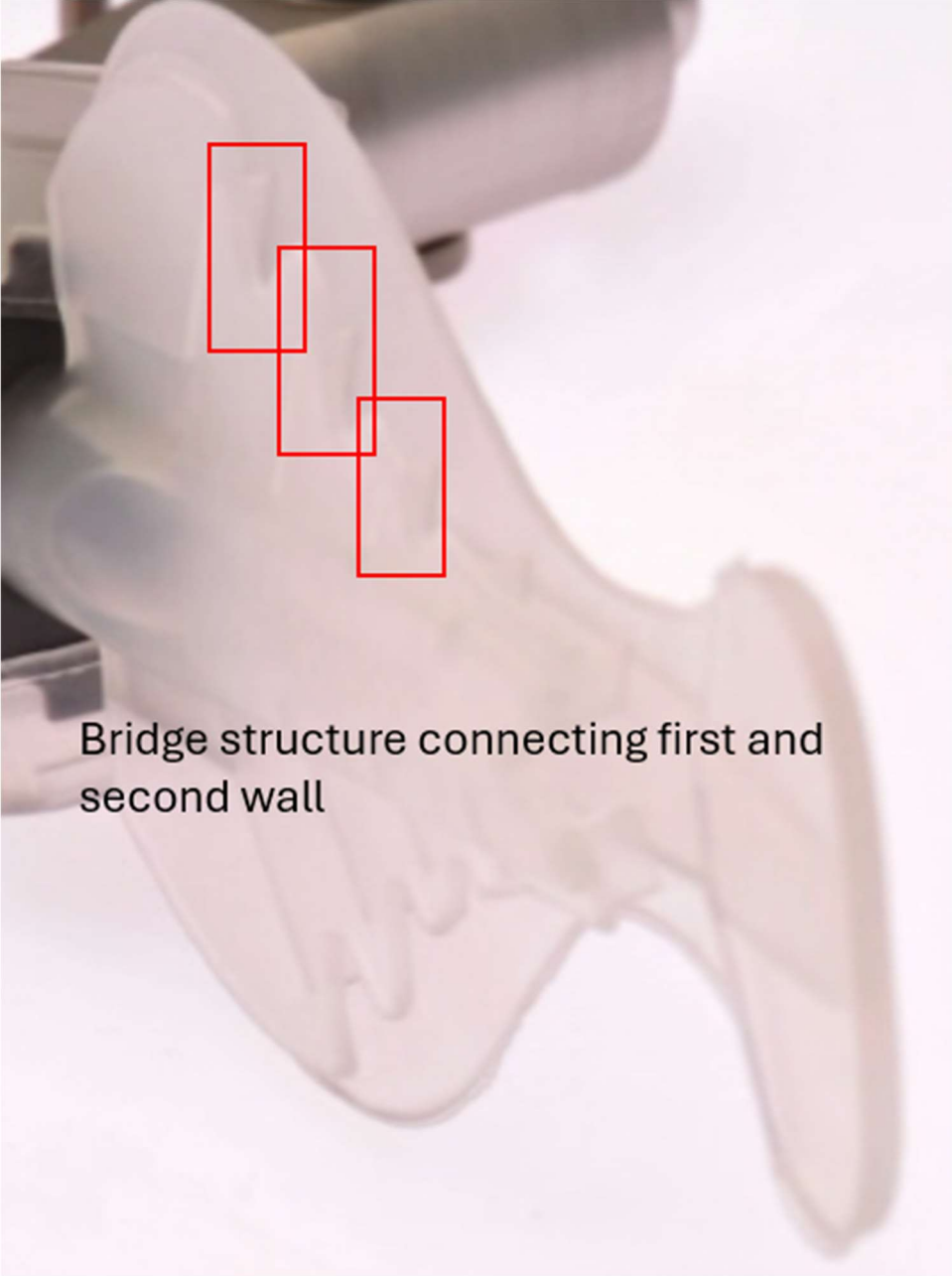
The '329 Patent	Exemplary Disclosures in the Prior Art
1[f] a bridge structure that includes a plurality of spaced protrusions protruding from an interior surface of the second wall, the bridge structure extending across the distance between the first wall and the second wall through the interior space towards the first wall; and	Park mentions that “common features,” such as anti-collapse structures, are “omitted.” Park, ¶ 22. However, a PHOSITA would understand that when suction is applied through the suction port 112, the first wall and the second wall are likely to collapse under the suction force. Baughan, 3:46-48. This collapsing would occur because Park teaches that the mouth prop comprises a flexible material, such as silicone. Park, ¶32, 34. The sidewalls and the insertion part 111 would help resist this collapsing force, but a PHOSITA would understand that additional anti-collapsing structure would assist at the weakest areas of the tongue retractor 130. More specifically, an area of the mouth prop furthest from a rigid structure, such as the sidewall, the socket 111, or the insertion port 110 would be most likely to collapse under suction. A PHOSITA would understand that these areas, depicted below, are the most likely areas to collapse under suction due to their location and distance from rigid structure. <i>Id.</i>  If these areas collapse under suction, suction power would be significantly reduced or blocked entirely. Thus, a PHOSITA would have been motivated to add anti-collapsing structure to prevent collapse. <i>Id.</i> Moreover, it is unclear whether the mouth prop 100 includes a spine or other rigid structure running through the middle of the mouth prop 100. FIG. 3 of Park suggest that something is running from the socket 111 toward the cheek retractor end of the mouth prop. Park, FIG. 3.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 However, this line is not shown in FIG. 6.  Thus, the line shown in FIG. 3 may not provide any rigidity or anti-collapse features at all and may only assist in guiding light from the light guide 240. Park, ¶ 39; Thus, the weakest part of the mouth prop may actually be the exact center of the mouth prop (see annotated FIG. 6 below).

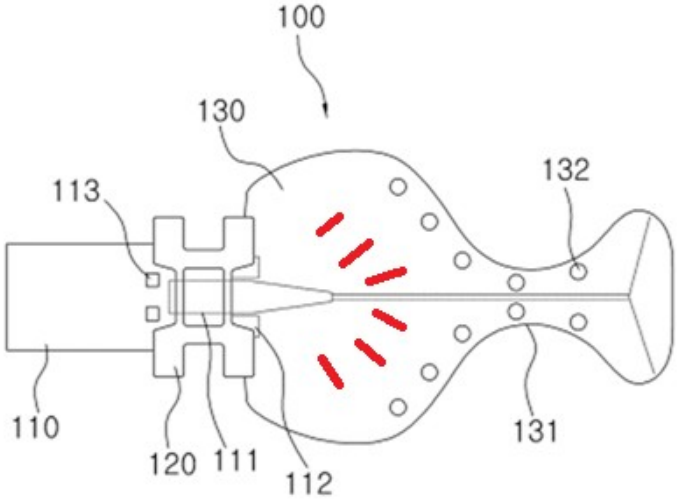
The '329 Patent	Exemplary Disclosures in the Prior Art
	 Regardless, a PHOSITA would know that Park is weak in at least one area and may collapse or restrict fluid communication due to wall collapse caused by suction due to the flexible material comprising the mouth prop 100. Park, ¶ 32. To prevent collapse or restriction, a PHOSITA would have been motivated to add mechanical elements that prevent collapse under suction. To the extent that Solmetex contends that Park does not disclose “a bridge structure that includes a plurality of spaced protrusions protruding from an interior surface of the second wall, the bridge structure extending across the distance between the first wall and the second wall through the interior space towards the first wall,” that limitation is disclosed by one or more of Baughan, Johnson, Black, or AirBug. Baughan teaches such a mechanical element that prevents collapse under suction. Baughan, 3:43-48. Specifically, Baughan teaches three projecting discs 17 that prevent collapse under suction when a sleeve is inserted over a tube 15. Baughan, 2:19-25, 2:51-55, 3:43-48. The discs 17 project outward from the tube, span the distance between the tube and the sleeve, and engage the sleeve. <i>Id.</i> These rigid structures, spaced apart from each other, prevent the sleeve from collapsing under suction. <i>Id.</i> Baughan teaches that the projecting discs 17 are secured to the tube 15, and the sleeve rests upon the discs. Baughan, 2:19-25, 2:51-61. While Baughan teaches outward projecting discs, a PHOSITA using basic common sense, would modify the discs 17 for a tube-shaped embodiment to be projections for a flatter, non-tube embodiment. 3. Indeed, it was well known in the art how to make projections on a flat surface. Johnson, FIG. 3, 4:16-23;

The '329 Patent	Exemplary Disclosures in the Prior Art
	Black teaches transverse walls 348c spaced apart from each other to form channels 342 therebetween. Black, 14:21-47. Black explains that these transverse walls form conduits for debris and fluid, “thereby allowing for simultaneous aspiration of debris and fluid from top (palate of mouth) to bottom (floor of mouth), and through the passageway, during dental procedures.” Black, 14:38-47. Black also explains that the transverse walls prevent collapse under suction. Black, 14:21-47; The transverse walls 348c are a bridge structure, as claimed. Indeed, the Examiner also found that Black taught the claimed bridge structure. <i>Id.</i> The transverse walls extend from an interior surface of the posterior flap 348a and to the anterior flap 348b (transverse walls shown dashed). Black, 14:21-47. Thus, the transverse walls are protrusions. <i>Id.</i>  FIG. 23A The AirBug Mouthpiece discloses the same:

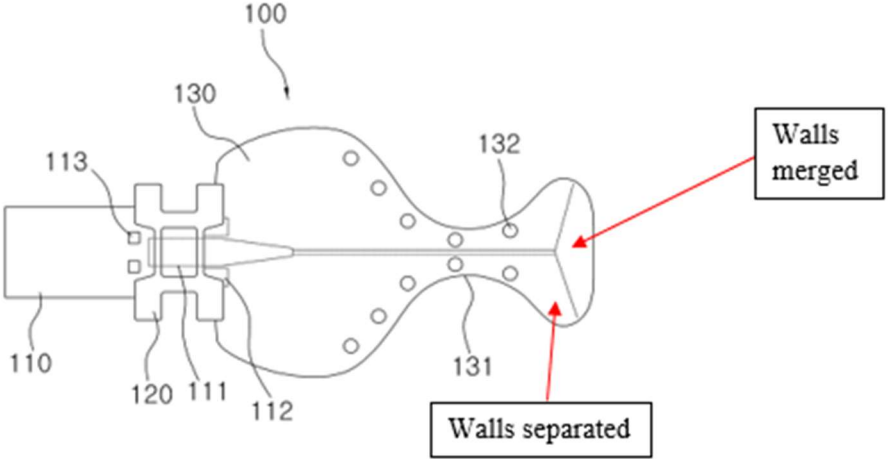
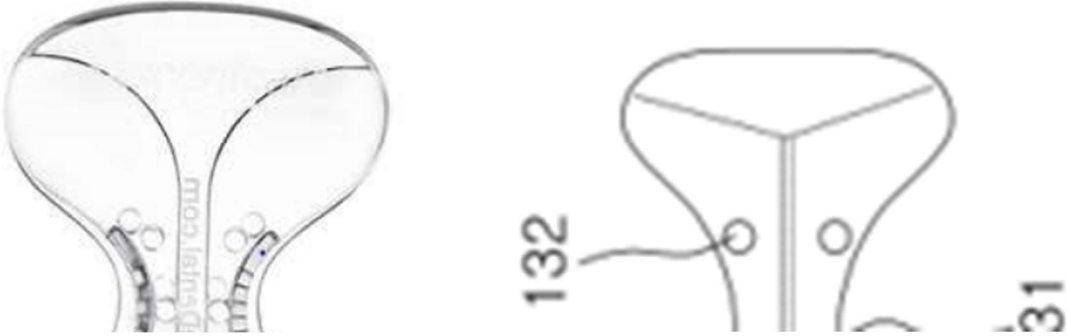
The '329 Patent	Exemplary Disclosures in the Prior Art
	Bridge Structures Connecting First and Second Wall 

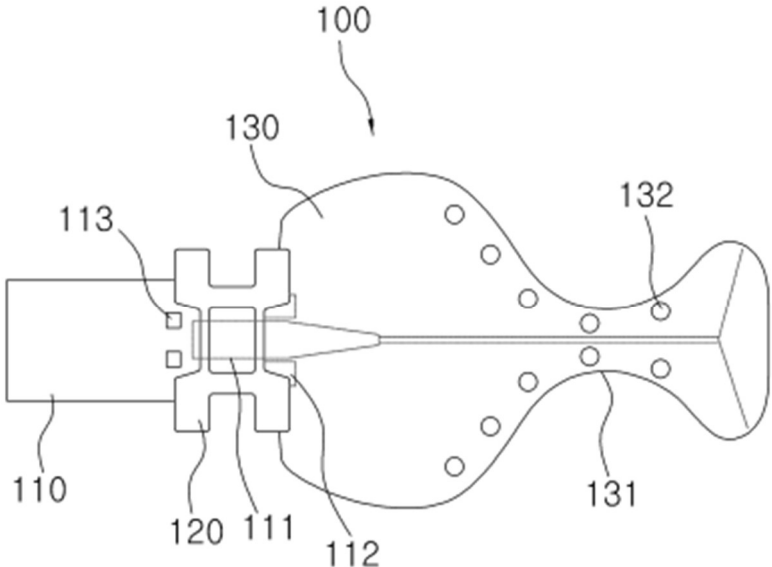
The '329 Patent	Exemplary Disclosures in the Prior Art
	 Bridge structure connecting first and second wall

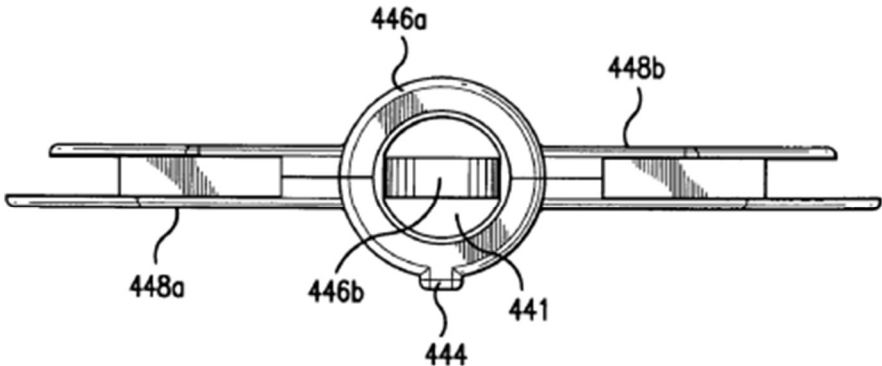
The '329 Patent	Exemplary Disclosures in the Prior Art
	Applying the simple teachings of one or more of Baughan, Johnson, Black, or AirBug to Park, it would have been obvious to include a plurality of spaced-apart projections formed on the posterior wall of Park to prevent collapsing of the posterior and anterior walls under suction at weak points of the mouth prop. A PHOSITA would have expected success because these simple mechanical structures ensure separation between two walls that would otherwise collapse under suction. Baughan, 3:43-48. A PHOSITA would have further known that spaced-apart projections ensure that channels for sucking saliva and foreign substances remain between the spaced-apart projections, lest the purpose of Park's mouth prop be defeated. Modifying Park in view of Baughan and Johnson would involve nothing more than applying a known technique (anti-collapse structure) to a known device ready for improvement (the mouth prop 100 of Park) to yield predictable results (preventing collapse at weak parts of the mouth prop 100 under suction), or combining prior art elements (a mouth prop having an interior chamber) according to known methods (using spaced-apart projections to prevent collapse under suction) to yield predictable results (the projections would prevent collapse under suction and still allow for suction channels therebetween). The spaced-apart projections taught by Baughan could be formed on either the first wall or the second wall. A PHOSITA would know that it makes no difference which wall connects to the projections so long as the projections connect to one of the walls. Park in view of one or more of Baughan, Johnson, Black, or AirBug would predictably result in multiple projections formed at the weakest point(s) of Park 111. <i>See</i> annotated Park, FIG. 3 below.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 A PHOSITA would know that the projections could be formed at any angle, but angling the projections/troughs toward the holes would create an efficient convergent flow.
1[g] a cheek-retractor portion connected to the narrower second end of the main body portion and expanding outwardly away from the second narrower end, the first wall and the second wall of the main body transitioning into and being connected in the cheek-retractor portion to form the cheek-retractor portion, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-	Park teaches that the concave section 131 (narrower second end) connects to a cheek retractor, which is formed to the right of the concave section and expands outwardly away from the second narrower end. Park, ¶ 31, FIGS. 1-3.

The '329 Patent	Exemplary Disclosures in the Prior Art
retractor portion before being connected at the cheek-retractor portion.	Park teaches two walls separated from each other to form an inner cavity anywhere holes 132 exist. FIG. 2 shows holes 132 are present right up until the two lines that form a “Y-shape” near the end of the mouth prop, which means that the first and second walls that transition into the cheek retractor portion remain separated for a distance within the cheek retractor portion. Past the “Y-shaped” lines, the first wall connects to the second wall, such that they are no longer separated. <i>Id.</i>

The '329 Patent	Exemplary Disclosures in the Prior Art
	 Diagram of a cheek retractor device 100. The device includes a main body 130 with an anterior wall 131 and a superior wall 132. A suction connector 110 is attached to the main body, with a cavity 111 extending longitudinally. Suction ports 112 are located within the cavity. The diagram shows the device in two states: 'Walls merged' (top) and 'Walls separated' (bottom). The device is shown in a cross-sectional view, with the interior chamber 113 visible. The device is shown in a perspective view, with the interior chamber 113 visible. The device is shown in a perspective view, with the interior chamber 113 visible. Additionally, Park's design is basically identical to the cheek retractor that Solmetex appears to assert as infringing this limitation. <i>Id.</i>  Two perspective views of a cheek retractor device. The left view shows the device with a central opening and two side openings. The right view shows the device with a central opening and two side openings. The device is shown in a perspective view, with the interior chamber 113 visible. The device is shown in a perspective view, with the interior chamber 113 visible.
4 The mouthpiece of claim 1, further comprising a suction connector extending from the first end of the main body, wherein an evacuation conduit within the suction connector is in communication with the interior space between the first wall and the second wall.	Park teaches an insertion port 110 extending from an end of the tongue retractor opposite the cheek retractor. Park, ¶¶ 26, 31. Park teaches that the insertion port 110 connects to a vacuum source to suction foreign material. Park ¶¶ 26-28, 43; The insertion port 110 suctions through the suction ports 112 that extend into the inner chamber between the anterior wall and the superior wall explained above. <i>Id.</i>; Park discloses the insertion port 110 as hollow, thus teaching a suction connector that includes a cavity extending longitudinally from the main body portion and in communication with the interior chamber of the tongue retractor 130. Park ¶¶ 26-28, FIG. 2.

The '329 Patent	Exemplary Disclosures in the Prior Art
	
5 The mouthpiece of claim 4, wherein a wall thickness of the suction connector is greater than a wall thickness of the first wall or the second wall of the main body.	Park does not disclose whether the insertion port 110 has a different thickness than the anterior or posterior walls. However, it would have been obvious to a PHOSITA to make the insertion port thicker than the anterior or posterior wall. It would be immediately obvious to a PHOSITA to modify the insertion port 110 of Park to be thicker because the neck forms a connection with an evacuation tube, which should be strong and unlikely to break. Additionally, the neck is not inside the patient's mouth, so there is less of a patient comfort need in making the insertion port 110 soft. Such a change is also simply a change in size or proportion. MPEP 2144.04(IV)(A). Further, claim 5 is obvious in view of Park in combination with Black or AirBug. Black clearly illustrates that the neck 446 is much thicker than the posterior or anterior layers 448a, 448b. FIG. 24D

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 24D AirBug discloses the same:

The '329 Patent	Exemplary Disclosures in the Prior Art
	It would be immediately obvious to a PHOSITA to modify the insertion port 110 of Park to be thicker, like the neck 446 of Black, because the neck forms a connection with an evacuation tube, which should be strong and unlikely to break. Additionally, the neck is not inside the patient's mouth, so there is less of a patient comfort need in making the insertion port 110 soft. Black, 4:47-55. Hirsch and Isolite Mouthpiece disclose the same:

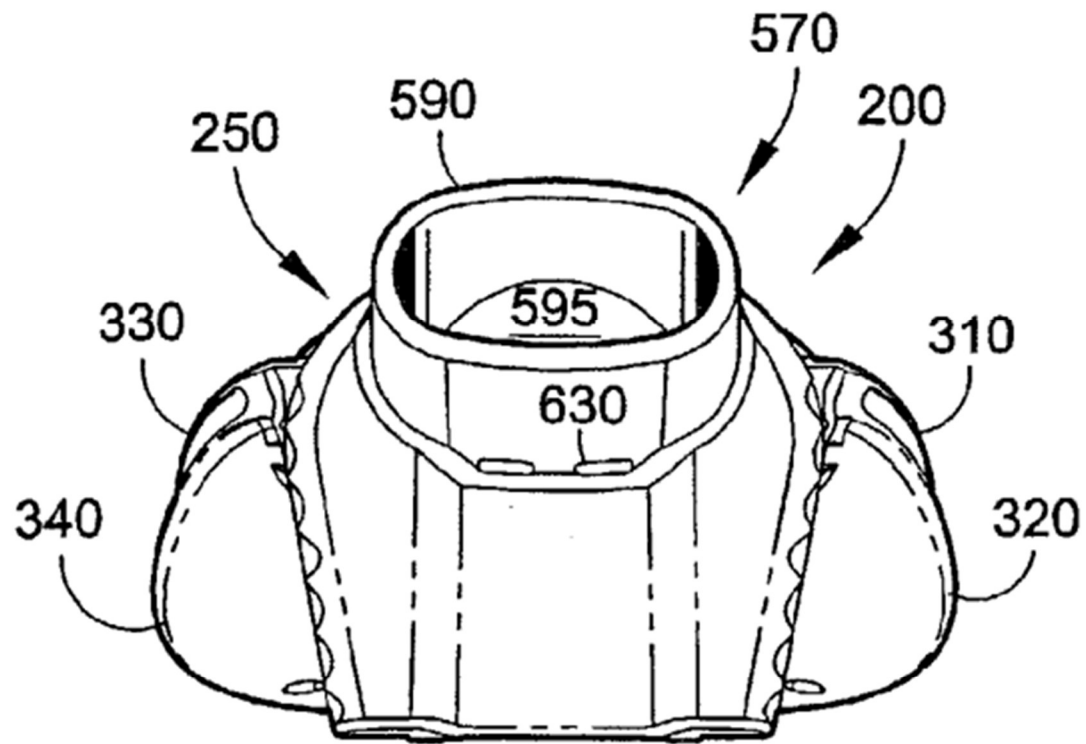
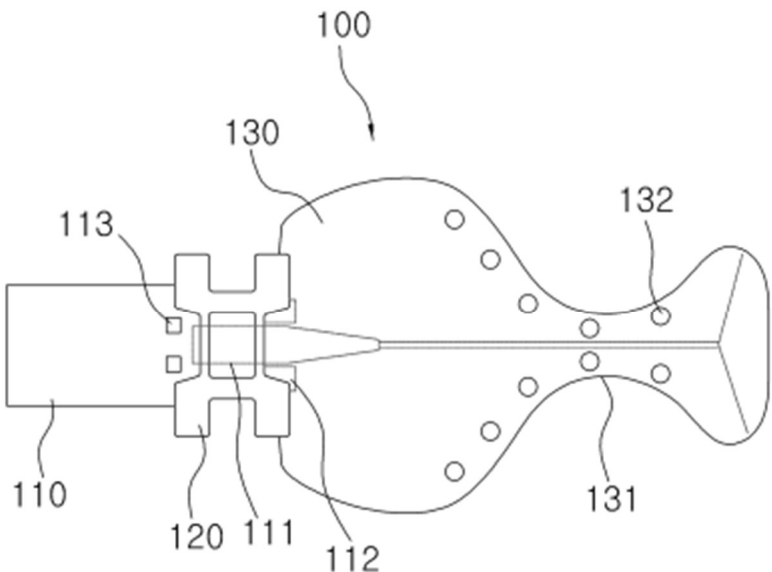
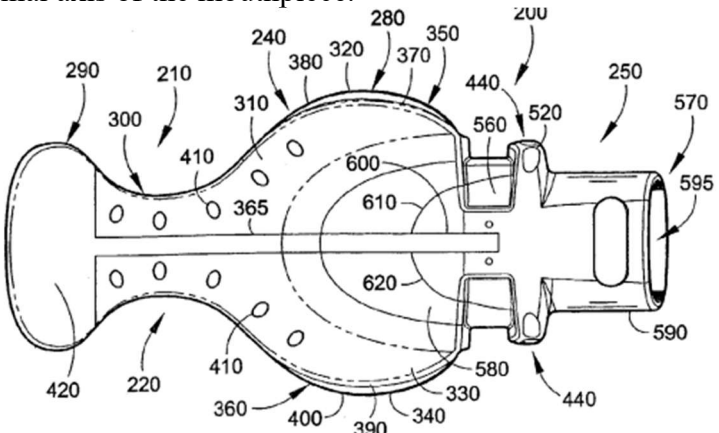
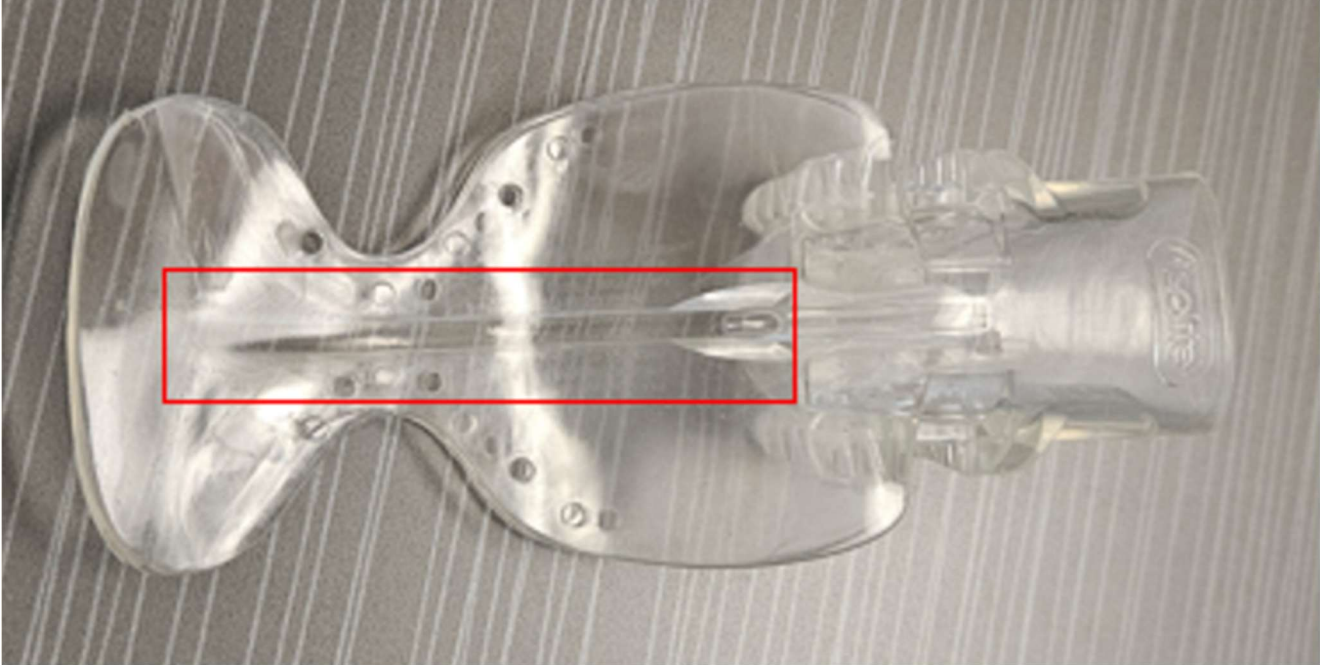


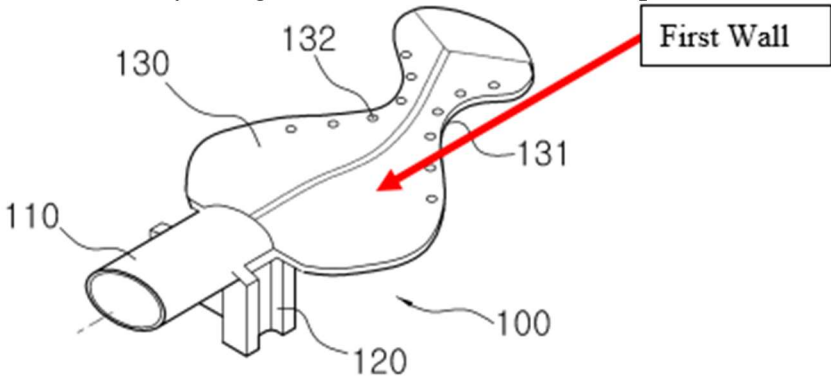
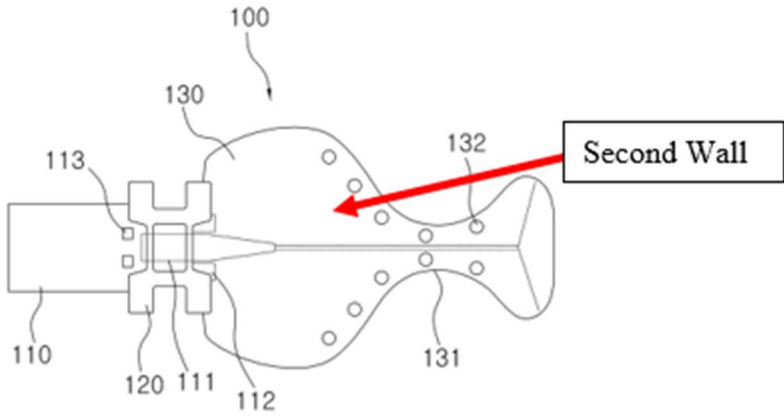
FIG. 19D

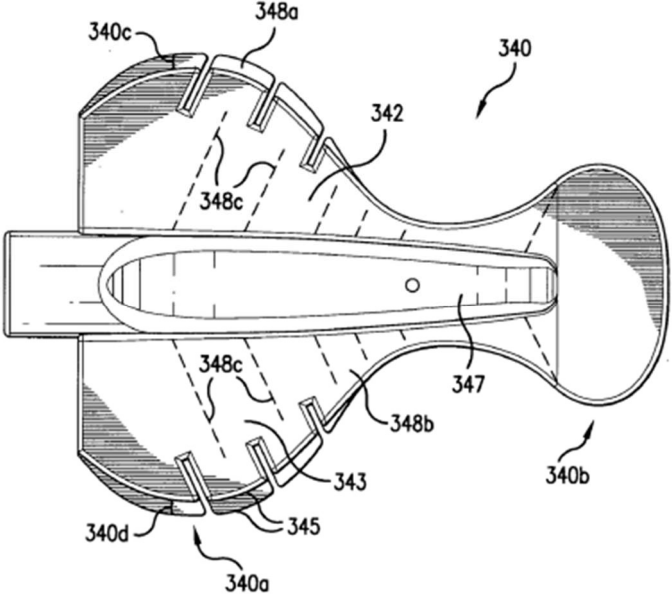
The '329 Patent	Exemplary Disclosures in the Prior Art
	
6 The mouthpiece of claim 4, wherein the suction connector further includes a cutout configured to interlock with a corresponding protrusion of a vacuum adapter, wherein a shape of the cutout follows a shape of a shield logo.	Park teaches a generally rectangular projection hole 113 that receives a locking projection 211 formed on the vacuum adapter 200. Park, ¶ 35. A PHOSITA would understand that these holes 113 create an interlocking fit with a projection on the vacuum adapter 200. Changing the projection hole 113 from rectangular to a shield shape is obvious. MPEP 2144.04(IV)(B).

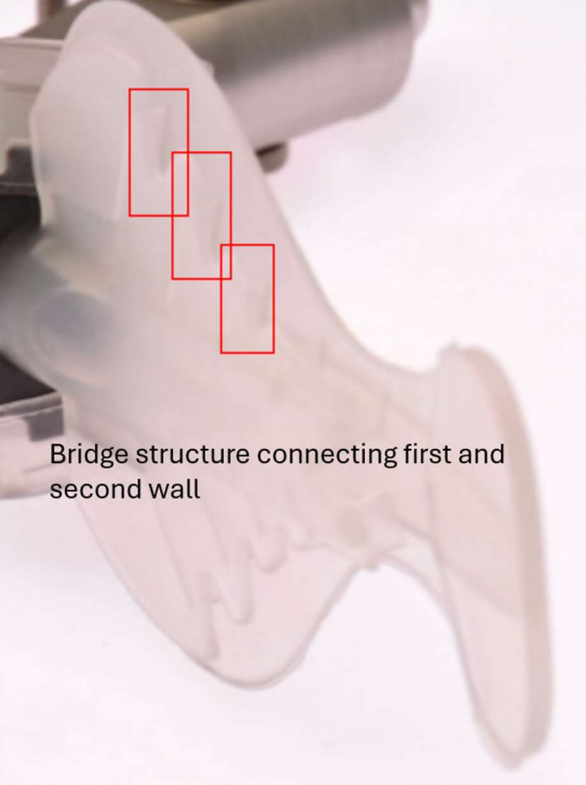
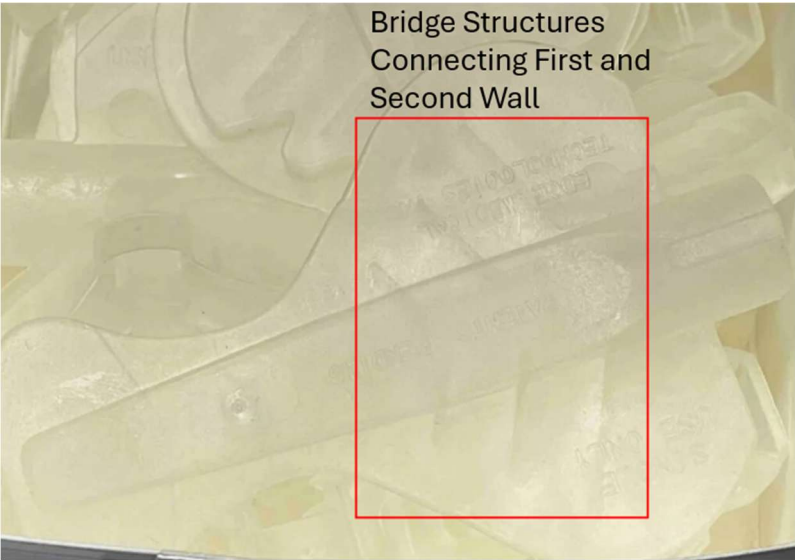
The '329 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex contends that Park does not disclose a “shield shape,” Ascentcare further notes that the USPTO has already noted that “having a particular shape for the cutout is a matter of choice in which a person of ordinary skill in the art would have found obvious by the absent [<i>sic</i>] of persuasive evidence in the present application, that the particular configuration of the claimed shape of the cutout is significant.” .” <i>See</i> Prosecution History '329 Patent at Office Action 9/23/2023, page 11, ¶ 32. Changing the slots 630 from rectangular to a “shield” shape is obvious. MPEP 2144.04(IV)(B). The Supreme Court has likewise found modifications on one system to fit another on the market to be obvious to a PHOSITA. <i>KSR Int'l Co. v. Teleflex Inc.</i>, 550 U.S. 398, 424, 127 S. Ct. 1727, 1744, 167 L. Ed. 2d 705 (2007) (“The interaction of multiple components means that changing one component often requires the others to be modified as well. Technological developments made it clear that engines using computer-controlled throttles would become standard. As a result, designers might have decided to design new pedals from scratch; but they also would have had reason to make pre-existing pedals work with the new engines. Indeed, upgrading its own pre-existing model led KSR to design the pedal now accused of infringing the Engelgau patent.”).

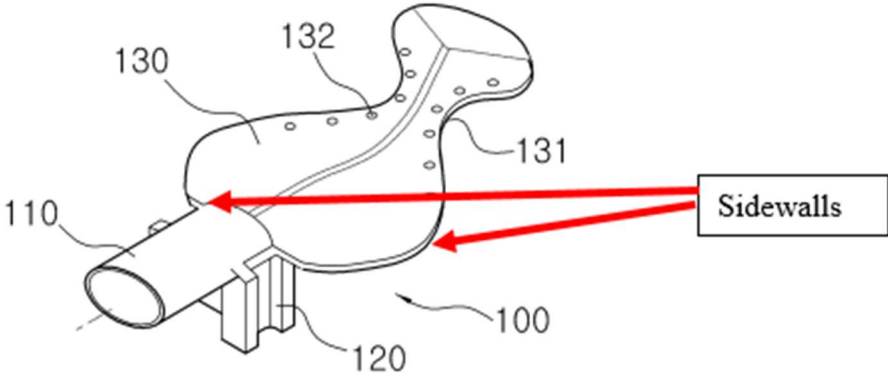
The '329 Patent	Exemplary Disclosures in the Prior Art
	Accordingly, to the extent that Park does not disclose a shield shaped cutout, it would have been obvious to modify Park with the skill of a PHOSITA to include a shield shaped cutout.
7 The mouthpiece of claim 1, further comprising a stability bar corresponding to a thickened area of the main body, the stability bar extending along a longitudinal axis of the main body between the first wall and the second wall, wherein a thickness of the stability bar reinforces at least a portion of the main body.	Park depicts a line running down the longitudinal axis of the mouth prop 100. Park, FIGs. 2-3. Park fails to expressly teach what this line is or how it functions. Park implies that this line likely assists in light transmission, especially considering that the light socket 111 is formed at one end of the line. Park, ¶ 39. A PHOSITA would understand this line to be a stability bar. To the extent that Solmetex contends that the line is not a stability bar, a PHOSITA would have been motivated to add a stability bar. It was well known before the priority date of the '329 Patent to include a spine in a dental isolation mouthpiece. For example, Hirsch teaches a dental isolation mouthpiece with a spine 365 running down a longitudinal axis of the mouthpiece.  FIG. 19A Hirsch teaches that the spine protrudes from an interior surface of the posterior wall and extends at least partially through the cheek retractor. Hirsch, ¶ 78. Hirsch teaches that this spine 365 assists in dispersing light in the oral cavity – a goal that Hirsch, the Isolite Mouthpiece, and Park share. Park, Abstract; Hirsch, ¶ 78. The additional benefit of the spine would be additional rigidity and resiliency, particularly where gums/ridges engage the concave portion 131. Thus, a PHOSITA would have been motivated to include the spine of Hirsch to the mouthpiece of Park to increase rigidity and help disperse light across the entire mouthpiece. <i>Id.</i> The increased rigidity would also help retract cheek tissue. Isolite Mouthpiece teaches the same.

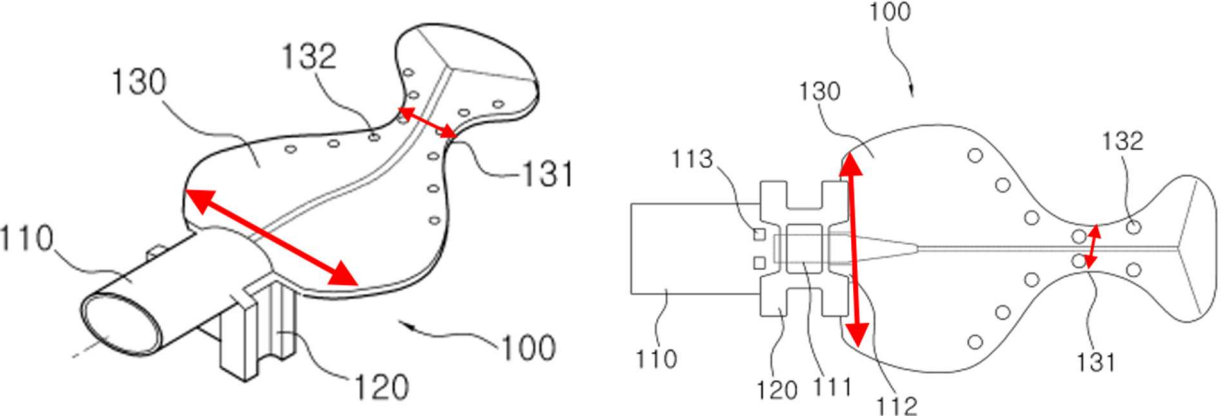
The '329 Patent	Exemplary Disclosures in the Prior Art
	 A PHOSITA would have expected success in adding the spine to the mouthpiece of Park, especially considering that both mouthpieces perform the same function and have very similar designs (Hirsch and Isolite Mouthpiece simply lacks sidewalls). Moreover, the addition of the spine would help prevent collapse of the top wall and bottom wall under suction. <i>Id.</i> The combination of the spine and the projections would prevent collapse at all weak areas of the mouth prop 100. <i>Id.</i> Finally, Park already envisioned two suction ports 112, so the addition of a dividing spine would not affect the ability to suction from all parts of the mouth prop 100. <i>Id.</i>
9[a] A mouthpiece for use with a suction system in a dental procedure, the mouthpiece comprising:	See Limitation 1[a].
9[b] a main body portion having a first end and a second end, the main body portion including:	See Limitation 1[b].

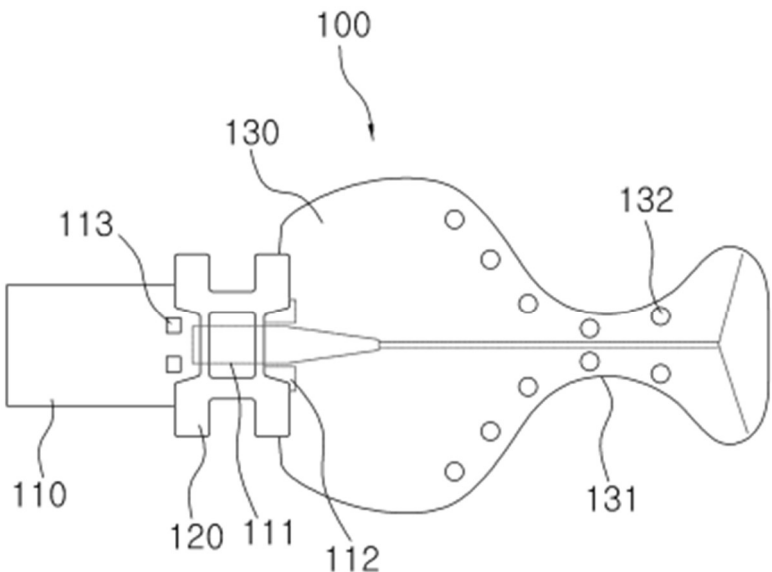
The '329 Patent	Exemplary Disclosures in the Prior Art
9[c] a first wall having a first edge and a second edge extending from the first end of the main body portion towards the second end of the main body portion, the first wall including a first plurality of perforations formed adjacent to and extending along a portion of the first edge and a second plurality of perforations formed adjacent to and extending along a portion of the second edge,	Park teaches a first wall defined by multiple edges. Park illustrates holes 132 formed in the anterior wall. Therefore, Park teaches a first plurality of perforations formed adjacent to and extending along a portion of the first edge of the first wall and a second plurality of perforations formed adjacent to and extending along a portion of the second edge of the first wall. Park, ¶ 31, FIG 2. A PHOSITA would instantly recognize that these holes 132 are perforations. 
9[d] a second wall having a third edge and a fourth edge extending from the first end of the main body portion towards the second end of the main body portion, the second wall including a third plurality of perforations formed adjacent to and extending along a portion of the third edge, and a fourth plurality of perforations formed adjacent to and extending along a portion of the fourth edge, wherein the second wall further includes a plurality of protrusions extending from an interior surface of the second wall	Park teaches a second wall defined by multiple edges. Park illustrates holes 132 formed in the posterior wall. Park, ¶ 31, FIG 3. Therefore, Park teaches a third plurality of perforations formed adjacent to and extending along a portion of the third edge of the posterior wall, and a fourth plurality of perforations formed adjacent to and extending along a portion of the fourth edge of the posterior wall. A PHOSITA would instantly recognize that these holes 132 are perforations. 

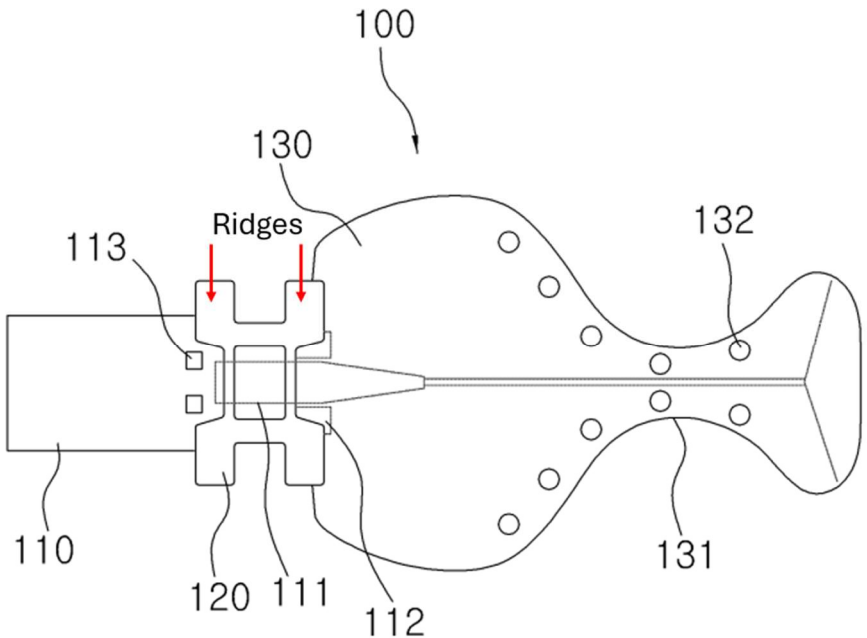
The '329 Patent	Exemplary Disclosures in the Prior Art
towards the first wall in a shape having one or more crests and one or more troughs, and	While Park is silent on “second wall further includes a plurality of protrusions extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs,” both Black and AirBug teach the same: Black and AirBug disclose “wherein the second wall further includes a plurality of protrusions extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs:” The transverse walls extend from an interior surface of the posterior flap 348a and to the anterior flap 348b (transverse walls shown dashed). Black, 14:21-47. Thus, the transverse walls are protrusions. <i>Id.</i>  FIG. 23A The AirBug Mouthpiece discloses the same:

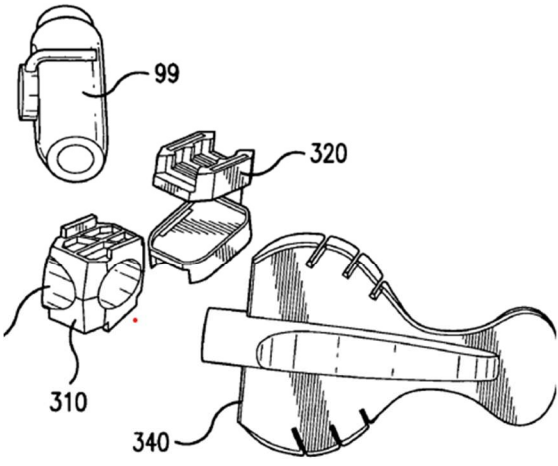
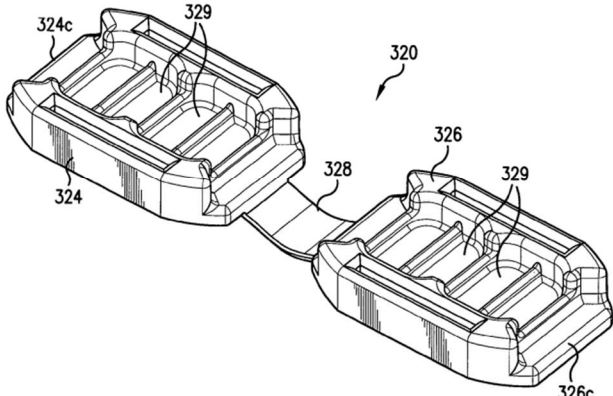
The '329 Patent	Exemplary Disclosures in the Prior Art
	 Bridge structure connecting first and second wall  Bridge Structures Connecting First and Second Wall As discussed above, the addition of protrusions extending between the first and second walls would improve stability, anti-collapse, and patient comfort. As discussed above, Baughan also teaches the protrusions, crests, and troughs. Baughan teaches such a mechanical element that prevents collapse under suction. Baughan, 3:43-48. Specifically, Baughan teaches three projecting discs 17 that prevent collapse under suction when a sleeve is inserted over a tube 15. Baughan, 2:19-25, 2:51-55, 3:43-48. The discs 17 project outward from the tube, span the distance between the tube and the sleeve, and engage the sleeve. <i>Id.</i> These rigid structures, spaced apart from each other, prevent the sleeve from collapsing under suction. <i>Id.</i> Baughan teaches that the projecting discs 17 are secured to the tube 15, and the sleeve rests upon the discs. Baughan, 2:19-25, 2:51-61.

The '329 Patent	Exemplary Disclosures in the Prior Art
	While Baughan teaches outward projecting discs, a PHOSITA using basic common sense, would modify the discs 17 for a tube-shaped embodiment to be projections for a flatter, non-tube embodiment. 3. Indeed, it was well known in the art how to make projections on a flat surface. Johnson, FIG. 3, 4:16-23.
9[e] a third wall connecting the first wall and the second wall such that the first wall is spaced from the second wall to define an inner cavity, wherein a portion of the first wall has a first width adjacent to the first end of the main body portion and a second width adjacent to the second end of the main body portion, wherein a portion of the second wall has a third width adjacent to the first end of the main body portion and a fourth width adjacent to the second end of the main body portion, wherein the first width is greater than the second width, and wherein the third width is greater than the fourth width;	Park teaches a sidewall that connects to the anterior wall and the posterior wall across the distance between these two walls. Park, FIG. 2.  Park teaches that the first wall is spaced from the second wall to define an inner cavity. Park also teaches that a first end of the tongue retractor 130 is wider than a second end. Park, FIGS. 2 and 3 (annotated below).

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9[f] a suction connector portion extending from the first end of the main body portion, the suction connector portion including: a generally tubular conduit including: an opening extending through the conduit and in fluid communication with the inner cavity, the opening being configured to receive a vacuum portion of the suction system therein, and a cutout configured to engage a protrusion on the suction system to aid in coupling the mouthpiece to the suction system;	Park teaches an insertion port 110 extending from an end of the tongue retractor opposite the cheek retractor. Park, ¶¶ 26, 31. Park teaches that the insertion port 110 connects to a vacuum source to suction foreign material. Park ¶¶ 26-28, 43; The insertion port 110 suctions through the suction ports 112 that extend into the inner chamber between the anterior wall and the superior wall explained above. <i>Id.</i>; See Section IX.C.1.d. Park discloses the insertion port 110 as hollow, thus teaching a suction connector that includes a cavity extending longitudinally from the main body portion and in communication with the interior chamber of the tongue retractor 130. Park ¶¶ 26-28, FIG. 2.

The '329 Patent	Exemplary Disclosures in the Prior Art
	
9[g] a mouth prop including a first side and a second side that are inwardly tapered from a top surface of the mouth prop towards a bottom surface of the mouth prop, the first side and the second side each including a plurality of ridges; and	Park discloses a tooth support section 120 (mouth prop) having interlocking grooves formed on the upper and lower sides, allowing the patient's upper and lower teeth to interlock. Park, ¶ 29. thus, Park teaches a mouth prop including a first and second side that each include a plurality of ridges. It's not clear whether the first and second sides of the tooth support section 120 taper.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex disagrees that Park discloses such ridges, or that they taper, the addition of ridges would be obvious in view of the skill of a PHOSITA. Specifically, a tapered shape better accommodates a patient's mouth in the open position leading to increased patient comfort, and the additional allow for a more secure position within the mouth. However, it would have been further obvious to a PHOSITA to make the tooth support section 120 (mouth prop) tapered in view of one or more of Black AirBug, Hirsch, or Isolite. Black illustrates that the bite member 310 includes a bite grip 320 with a plurality of ridges on each side of the bite grip 320.

The '329 Patent	Exemplary Disclosures in the Prior Art
	 FIG. 19  FIG. 21A AirBug discloses the same tapering mouthpiece with ridges:

The '329 Patent	Exemplary Disclosures in the Prior Art
	The same tapering, ridged, bite blocks are disclosed by Hirsch, and Isolite Mouthpiece.

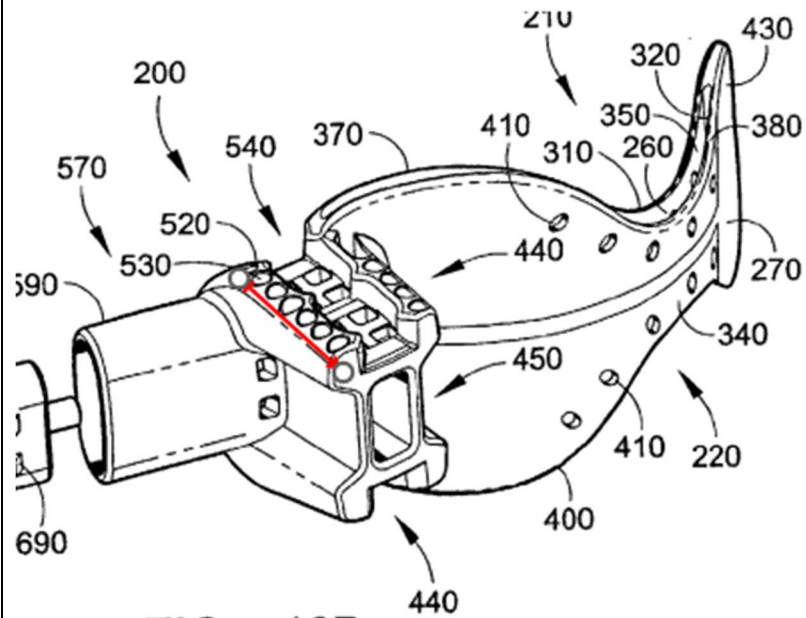
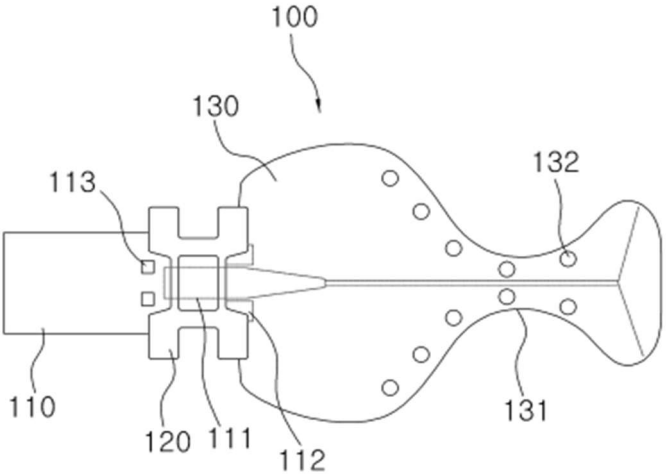
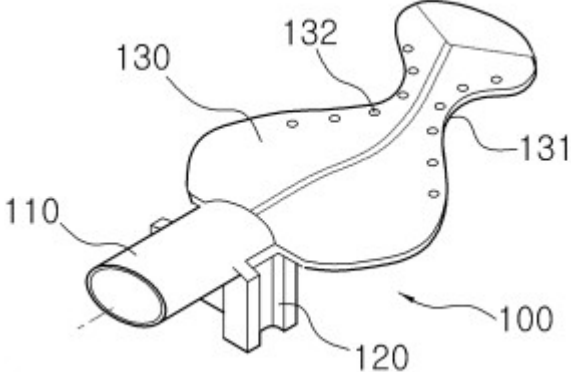
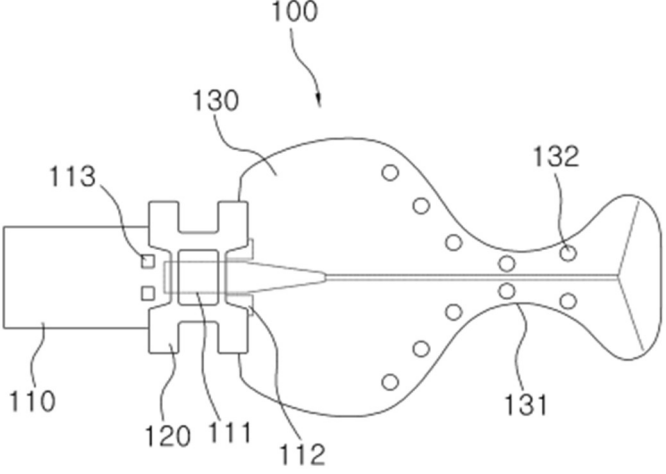


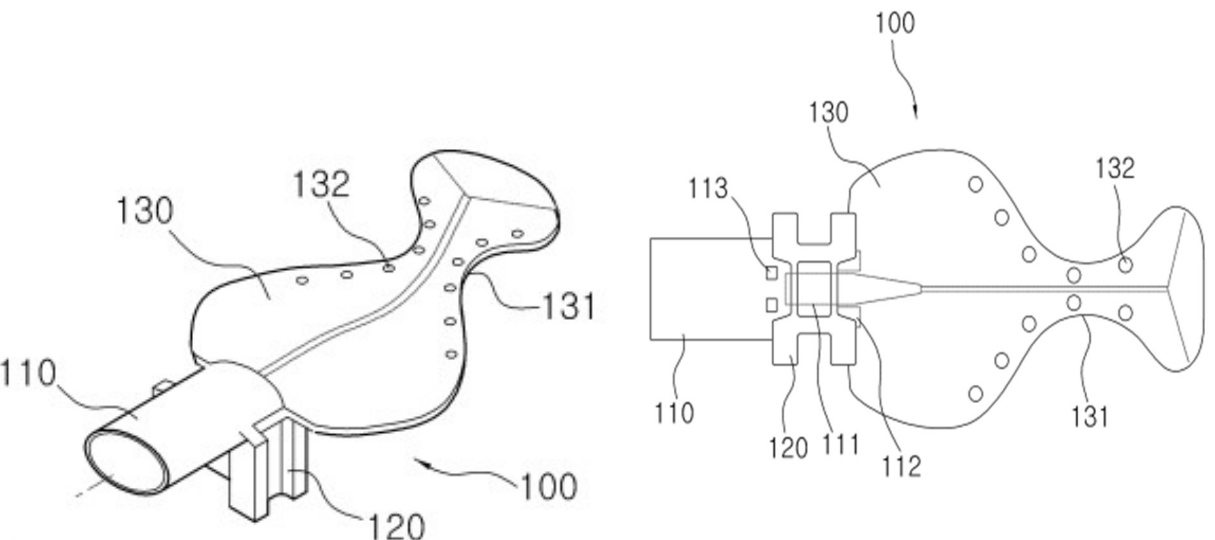
FIG. 18B



The '329 Patent	Exemplary Disclosures in the Prior Art
9[h] a cheek retractor portion having a first cheek-retractor end coupled to the second end of the main body portion and a second cheek-retractor end, the first cheek-retractor end and the second cheek-retractor end each having rounded edges, wherein the first wall and the second wall of the main body portion that transition into the cheek-retractor portion are spaced apart from each other for a distance within the cheek-retractor portion before being connected to each other in the cheek-retractor portion.	See Limitation 1[g]. Park also illustrates that the first and second ends of the cheek retractor each have rounded edges. Park, FIG. 3. 
10 The mouthpiece of claim 9, wherein the cutout has a shield shape.	See Claim 6.
11 The mouthpiece of claim 9, wherein the cutout is generally triangular and has a top edge, a first curved edge, and a second curved edge.	See Claim 6.
12 The mouthpiece of claim 9, wherein a wall thickness of the conduit is greater than a wall thickness of the first wall or the second wall of the main body.	See Claim 5.
13 The mouthpiece of claim 9, wherein the first plurality of perforations of the first wall and the second plurality of	Park's first and second pluralities of perforations on the anterior wall each have 6 perforations, thus fulfilling this limitation. Park, FIG. 2.

The '329 Patent	Exemplary Disclosures in the Prior Art
perforations of the first wall each include at least five perforations.	 To the extent that Solmetex contends that the perforations must be on the main body portion, this limitation is obvious in view of Park in combination with a PHOSITA. Specifically, a PHOSITA would have understood that including additional perforations would improve suction, area of suction, and therefore, patient comfort. Adding more perforations would be obvious to a PHOSITA, as a mere duplication of parts. MPEP 2144.04(VI)(B).
14 The mouthpiece of claim 13, wherein the third plurality of perforations of the second wall and the fourth plurality of perforations of the second wall each include at least three perforations.	Park's third and fourth pluralities of perforations on the posterior wall each have 5 perforations, thus fulfilling this limitation. Park, FIG. 3. 

The '329 Patent	Exemplary Disclosures in the Prior Art
	To the extent that Solmetex contends that the perforations must be on the main body portion, this limitation is obvious in view of Park in combination with a PHOSITA. Specifically, a PHOSITA would have understood that including additional perforations would improve suction, area of suction, and therefore, patient comfort. Adding more perforations would be obvious to a PHOSITA, as a mere duplication of parts. MPEP 2144.04(VI)(B).
30[a] An isolation mouthpiece for use with a suction system in a dental procedure, the mouthpiece comprising:	<i>See</i> Limitation 1[a]
30[b] a main body portion having a first end and a second end, the main body portion including:	<i>See</i> Limitation 1[b]
30[c] a first wall having a first edge and a second edge extending from the first end of the main body portion towards the second end of the main body portion, the first wall including a first plurality of perforations formed adjacent to and extending along a portion of the first edge and a second plurality of perforations formed adjacent to and extending along a portion of the second edge,	<i>See</i> Limitation 9[c].
30[d] a second wall having a third edge and a fourth edge extending from the first end of the main body portion towards the second end of the main body portion, the second wall including a third plurality of perforations formed adjacent	<i>See</i> Limitation 9[d]. Further, in Park, the anterior wall has the exact same size and shape as the posterior wall. Park, FIGS. 2 and 3. Therefore, Park teaches that the first wall and the second wall are shaped such that the first edge of the first wall corresponds to the third edge of the second wall and the second edge of the first wall corresponds to the fourth edge of the second wall.

The '329 Patent	Exemplary Disclosures in the Prior Art
to and extending along a portion of the third edge, and a fourth plurality of perforations formed adjacent to and extending along a portion of the fourth edge, wherein the second wall further includes a plurality of protrusions extending from an interior surface of the second wall towards the first wall in a shape having one or more crests and one or more troughs, and wherein the first wall and the second wall are shaped such that the first edge of the first wall corresponds to the third edge of the second wall and the second edge of the first wall corresponds to the fourth edge of the second wall, and	
30[e] a third wall connecting the first wall and the second wall such that the first wall is spaced from the second wall to define an inner cavity, wherein a portion of the first wall has a first width adjacent to the first end of the main body portion and a second width adjacent to the second end of the main body portion, wherein a portion of the second wall has a third width adjacent to the first end of the main body portion and a fourth width	See Limitation 9[e].

The '329 Patent	Exemplary Disclosures in the Prior Art
adjacent to the second end of the main body portion, wherein the first width is greater than the second width, and wherein the third width is greater than the fourth width;	
30[f] a suction connector portion extending from the first end of the main body portion, the suction connector portion including: a generally tubular conduit including: an opening extending through the conduit and in fluid communication with the inner cavity, the opening being configured to receive a vacuum portion of the suction system therein, and a cutout configured to engage a protrusion on the suction system to aid in coupling the mouthpiece to the suction system;	<i>See Limitation 9[f].</i>
30[g] a mouth prop including a first side and a second side that are inwardly tapered from a top surface of the mouth prop towards a bottom surface of the mouth prop, the first side and the second side each including a plurality of ridges; and	<i>See Limitation 9[g].</i>
30[h] a cheek retractor portion having a first cheek-retractor end coupled to the second end of the main body portion and a second cheek-retractor end, the	<i>See Limitation 9[h].</i>

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first cheek-retractor end and the second cheek-retractor end each having rounded edges.	