

EXHIBIT A-0
Initial Invalidity Chart for U.S. Patent No. 11,589,969

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 11,589,969	Prior Art
Independent Claim 19. A dental mouthpiece comprising:	Hirsch '321: FIG. 1, Abstract Isolite Mouthpiece Black: Abstract AirBug Mouthpiece Mr. Thirsty KR101217041: FIG. 1 – applicator 1 KR101082826: FIGS. 2 and 3, Abstract KR100654392: FIG. 1, Abstract CN102631180: FIGS. 1-3 Johnson: FIG. 2, Abstract Zorovich: Abstract.
Limitation 19(a): a main body portion configured as a pocket at least partially enclosing an interior space, the pocket defined by:	Hirsch '321: FIG. 19A, Refs. 280, 410, claims 1 and 8 Isolite Mouthpiece Black: FIGS. 4C, 23A-C “the proximal flap 40 a and/or the distal flap 40 b of the tongue shield aspirator 40 may be formed from a first (posterior) layer 48 a and a second (anterior) layer 48 b which are connected to, but spaced apart from, one another by transverse walls 48 c.” AirBug Mouthpiece Mr. Thirsty KR101217041: FIG. 1, tongue protector 20 KR101082826: FIGS. 2 and 3, Ref. 130 KR100654392: FIG. 1, “the tongue protection portion (20) is shaped in an arch to push the tongue inward, and suction holes (23) and (23a) are formed in each wing (21) and (22) for sucking in oral substances” CN102631180: FIGS. 1-3, reference no. 3 Johnson: FIGS. 2 and 3, saliva ejector 10 Zorovich: FIG. 1, <i>e.g.</i> , shield member 2.
Limitation 19(b): a first wall that includes one or more perforations in	Hirsch '321: FIG. 19A, Col. 11 Ln. 52–67 Isolite Mouthpiece

communication with the interior space of the pocket, the first wall having a shape defined by one or more edges along one or more sides;	Black: FIGS. 4C, 23A-C, “an open tongue shield aspirator including a first layer having a posterior side, an anterior side, a proximal edge, a distal edge, a bottom edge” AirBug Mouthpiece Mr. Thirsty KR101217041: FIG. 1, wing 24 and pores 23 KR101082826: FIGS. 2 and 3, anterior wall of tongue retractor 130; [0031] “In addition, multiple through holes (132) can be formed in the tongue traction portion (130).” KR100654392: FIG. 1, “the tongue protection portion (20) is shaped in an arch to push the tongue inward, and suction holes (23) and (23a) are formed in each wing (21) and (22) for sucking in oral substances” CN102631180: FIGS. 1-3, anterior wall of reference no. 3 Johnson: FIG. 3, Plate 32 Zorovich; FIG. 1; front wall of drain channel 8 of system 10 and apertures 12.
Limitation 19(c): a second wall having a shape that corresponds to the shape of the first wall, the shape of the second wall defined by one or more corresponding edges along one or more corresponding sides,	Hirsch ‘321: FIG. 19A, Col. 11 Ln. 52–67 Isolite Mouthpiece Black: FIGS. 4C, 23A-C, “a second layer having a posterior side, an anterior side, a proximal edge, a distal edge, a bottom edge, and a top edge, wherein the proximal edges of the first and second layers are substantially flush with each other” AirBug Mouthpiece KR101217041: FIG. 1, wing 25 KR101082826: FIGS. 2 and 3, posterior wall of tongue retractor 130; KR100654392: FIG. 1, “the tongue protection portion (20) is shaped in an arch to push the tongue inward, and suction holes (23) and (23a) are formed in each wing (21) and (22) for sucking in oral substances” CN102631180: FIGS. 1-3, posterior wall of reference no. 3 Johnson: FIG. 3, Plate 30 Zorovich: FIG. 1, rear wall of shield member 2.
Limitation 19(d): wherein the second wall includes a bridge structure that includes a plurality of protrusions integral with and protruding from an interior surface of the second wall within the interior space of the pocket, wherein the	Black: FIG. 23A-C, Ref. 348c AirBug Mouthpiece Johnson: FIG. 3, Ribs 56, 58. It would be obvious to modify the ribs to have a waveform shape for better suction. Zorovich: protrusions on drain channel 8 near narrow central portion 18 CN102631180: FIGs. 1-3, protective layer 8 and flow passages 71, 72 To the extent any of Hirsch ‘321, KR101217041, KR101082826, KR100654392, and CN102631180 fail to teach limitation 19(d), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of the above references with those taught below. The resulting combination would satisfy the requirements of the claimed invention.

protrusions of the bridge structure protrude from the interior surface of the second wall toward the first wall in a wave shape comprising one or more crests and one or more troughs, and	As a non-limiting example, Hirsch may be combined with Black. The mouthpiece of Hirsch includes four flaps that tend to collapse under pressure and suction. Black teaches transverse walls that keep two parallel walls separated under suction and create channels for suction. In combination, Hirsch would include transverse walls between the anterior and posterior flaps to keep the flaps separated under suction. Hirsch may also be combined with Baughan or Johnson to include anti-collapse structure between the anterior and posterior flaps. Black: FIG. 23A-C, Ref. 348c Baughan: FIG. 2, Ref. 17 Johnson: FIG. 3, Ribs 56, 58. It would be obvious to modify the ribs to have a waveform shape for better suction.
Limitation 19(e): a connecting wall that connects the one or more edges of the first wall to the one or more corresponding edges of the second wall across a span between the first wall and the second wall;	Hirsch '321: FIGS. 19A, 19C Col. 11 Ln. 52–67 Isolite Mouthpiece Black: <i>e.g.</i>, FIGs. 23A-C, 1, 2A, 3A, 4C, 12, 13, 18 - wall near neck AirBug Mouthpiece KR101217041: FIG. 1, wall near tube coupling portion 10 KR101082826: FIGS. 2, sidewalls illustrated connecting anterior and posterior walls of tongue retractor 130 KR100654392: FIG. 1, wall near tube connecting portion 10 CN102631180: FIGS. 1-3, connector 6 Johnson: FIG. 3, Interconnecting section 72 Zorovich: FIG. 1, portion of drain channel 8 connecting system 10 to shield member 2
Limitation 19(f): a suction connector portion connected to a first end of the main body portion, the suction connector configured to connect a vacuum source to the interior space of the pocket; and	Hirsch '321: FIG. 19A, Ref. 570 Isolite Mouthpiece Black: FIG. 4C, 23A-C “a neck 246 defining a transverse anterior opening 247 therethrough.” AirBug Mouthpiece KR101217041: FIG. 1, tube coupling portion 10 KR101082826: FIGS. 2 and 3, [0027] “The insertion port (110) serves as a portion for coupling with the device body (200), with one end open and the interior hollow.” KR100654392: FIG. 1, “In addition, the tube connection portion (10) is formed with a tube connecting opening (11) on one side, where a light tube (3) is connected, which operates to suck in oral substances through air suction while the optical fiber (2) is integrated.” CN102631180: FIGS. 1 and 3 Johnson: FIG. 2, Vacuum tube 12 Zorovich: FIG. 1, suction tube 6
Limitation 19(g): a cheek retractor connected to a second end of the main	Hirsch '321: FIG. 19A, Ref. 290 Col. 11 Ln. 45–50 Isolite Mouthpiece Black: FIG. 23A-C - 340b

body portion, wherein the second end is opposite the first end of the main body portion.	AirBug Mouthpiece KR101217041: FIG. 1, support portion 40 KR101082826: FIGS. 2 and 3, [0031] “The end of the tongue traction portion may have a slightly curved shape toward the back to ensure that it easily fits within the inside of the opposite cheek.” KR100654392: FIG. 1, “During the procedure, the ball support (40) is supported against the inner side of the user's cheek, ultimately pushing the cheek outward to create a wider treatment space within the oral cavity.” CN102631180: FIGS. 1 and 3 Zorovich: wider terminal portion 26 To the extent Johnson fails to teach limitation 19(g), it would have been obvious for an ordinarily skilled artisan to combine the described characteristics of one or more of Johnson with any of Hirsch '321, Black, KR101217041, KR101082826, KR100654392, CN102631180, or Zorovich. The resulting combination would satisfy the requirements of the claimed invention. As a non-limiting example, Johnson may be combined with Black. The mouthpiece of Johnson includes a flattened body. Black teaches a cheek retractor formed at an end opposite the suction connector to retract cheek tissue. In combination, Johnson would include a cheek retractor to retract cheek tissue during an dental procedure.
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**EXHIBIT A-1 (Anticipation in View of Black (U.S. Patent No. 8,029,280) or AirBug Mouthpiece or, in the Alternative, Obviousness in View of Black or AirBug Alone or in Combination with the Skill of a PHOSITA)
Initial Invalidity Chart for U.S. Patent No. 11,589,969**

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 103 and as described in the cover pleading and shown below, Black was patented 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. 11,589,969.

Pursuant to pre-AIA 35 U.S.C. §§ 102 and 103 and as described in the cover pleading and shown below, the AirBug Mouthpiece¹ was on sale or in public use more than one year prior to the priority date of the '969 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. 11,589,969.

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.

The '969 Patent	Exemplary Disclosures in the Prior Art
19[a] A dental mouthpiece comprising:	To the extent the preamble is limiting, each of the references discussed herein is a dental mouthpiece.
19[b] a main body portion configured as a pocket at least partially enclosing an interior space, the pocket defined by:	FIG. 23A Black discloses a tongue shield aspirator 340 configured to retract a patient's tongue. Black, 14:1-9. Specifically, Black discloses a first flap 340a connected to a second flap 340b, where the first flap 340a retracts a patient's tongue and the second flap 340b retracts a patient's cheek. <i>Id.</i>, 14:5-9. Black and further explains that the first flap 340a comprises a posterior layer 348a and an anterior layer 348b spaced apart from each other by transverse walls 348c. <i>Id.</i>, 14:25-30. The posterior layer 348a, the anterior layer 348b, and the transverse walls 348c at least partially enclose an interior space, such as channels 342, 343 and a longitudinal lumen that provide conduits for debris and fluid evacuation through the interior space. <i>Id.</i>, 14:21-63. The two layers 348a/b and the connecting wall at least partially enclose the channels 343, 342 and a longitudinal lumen, and thus, are a pocket under the positions taken by Solmetex in its Initial Infringement Contentions. Solmetex asserts that both VacuLux mouthpieces' open-sided mouthpiece is a "pocket."

The '969 Patent	Exemplary Disclosures in the Prior Art
	Further, the first flap 340a (main body) of Black comprises three walls – the posterior layer 348a, the anterior layer 348b, and a sidewall. These three walls at least partially enclose the interior space between the posterior layer 348a and the anterior layer 348b. Thus, according to Solmetex’s definition, Black’s main body is formed as a pocket. Under Solmetex’s construction of the term “pocket” and “partially enclosing an interior space” for infringement, the AirBug Mouthpiece also discloses a pocket at least partially enclosing an interior space: 

The '969 Patent	Exemplary Disclosures in the Prior Art
19[c] a first wall that includes one or more perforations in communication with the interior space of the pocket, the first wall having a shape defined by one or more edges along one or more sides;	FIG. 23B The main body 340a of Black includes a posterior layer 348a, which is a first wall. <i>Id.</i>, 14:25-30; As shown, the posterior layer 348a has a shape defined by one or more edges along one or more sides. <i>Id.</i>, FIG. 23B. FIG. 23B shows at least three edges: a superior suction connector edge (left side of FIG. 23B above the neck 346), an inferior suction connector edge (left side of FIG. 23B below the neck 346), and a continuous flap edge defining the inferior and superior sides of the first flap. <i>Id.</i>, 14:43-47, 14:64-15:20 The posterior layer 348a includes two perforations in communication with the interior space of the pocket shown in FIG. 23B. Likewise, the AirBug Mouthpiece also includes a first wall that includes one or more perforations in communication with the interior space of the pocket, the first wall having a shape defined by one or more edges along one or more sides:

The '969 Patent	Exemplary Disclosures in the Prior Art
	 A photograph of a dental mold, likely a wax or plaster model of a dental arch. The mold is light-colored and shows various dental structures. Two red rectangular boxes are drawn on the mold. The box on the left highlights a small, circular feature, possibly a pin or a hole. The box on the right highlights a larger, more complex feature, possibly a tooth or a bracket. The background is a plain, light-colored surface.

The '969 Patent	Exemplary Disclosures in the Prior Art
19[d] a second wall having a shape that corresponds to the shape of the first wall, the shape of the second wall defined by one or more corresponding edges along one or more corresponding sides,	FIG. 23A The main body 340a of Black includes an anterior layer 348b, which is a second wall. <i>Id.</i>, 14:25-30. As shown, the anterior layer 348b has a shape defined by one or more edges along one or more sides. The posterior layer 348a corresponds in shape to the anterior layer 348b, as shown in FIG. 23A. The anterior layer 348a matches the shape of the posterior layer 348a and is very similar in size. Thus, the anterior layer corresponds to the shape of the posterior layer. Black explains that the posterior layer 348a has a profile that extends beyond the profile of the anterior flap 348b, which can be seen in FIG. 23A. <i>Id.</i>, 15:57-63. Solmetex's own infringement contentions show alleged infringement of a mouthpiece having a lower flap that is far more different in size and shape than what Black shows.. Thus, according to Solmetex's own construction, two walls do not need to be identical in shape or size to have "corresponding edges along one or more corresponding sides." Thus, according to Solmetex's construction, Black's anterior layer and posterior layer having corresponding edges along corresponding sides and correspond in shape. As discussed in the cover pleading, Ascentcare also disputes Solmetex's apparent construction of "corresponding" consistent with above. Regardless, to the extent the anterior and posterior layers 348a/b must be identical in shape and size to have "one or more corresponding edges along one or more corresponding sides," Black discloses several embodiments having

The '969 Patent	Exemplary Disclosures in the Prior Art
	identical anterior and posterior layers. <i>Id.</i>, FIGs. 1, 3B, 4C, 13. To the extent obviousness is required here, combining features between embodiments within the same reference “does not require a leap of inventiveness.” <i>Boston Scientific Scimed, Inc. v. Cordis Corp.</i>, 554 F.3d 982, 991 (Fed. Cir. 2009). Moreover, changes in the size and shape of the posterior wall are obvious. MPEP 2144.04(IV)(A)-(B). As such, to the extent “corresponds to” is construed to mean “identical to,” it would have been obvious to resize and shape the posterior layer 348a to be identical to the anterior layer 348b in view of Black’s other embodiments. Black, FIGs. 1, 3B, 4C, 13 Under Solmetex’s construction of the word “corresponds” for infringement, AirBug also discloses a second wall having a shape that corresponds to the shape of the first wall, the shape of the second wall defined by one or more corresponding edges along one or more corresponding sides: 

The '969 Patent	Exemplary Disclosures in the Prior Art
19[e] wherein the second wall includes a bridge structure that includes a plurality of protrusions integral with and protruding from an interior surface of the second wall within the interior space of the pocket, wherein the protrusions of the bridge structure protrude from the interior surface of the second wall toward the first wall in a wave shape comprising one or more crests and one or more troughs, and	FIG. 23A Black teaches transverse walls 348c spaced apart from each other to form channels 342 therebetween. <i>Id.</i>, 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.” <i>Id.</i>, 14:38-47. 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> More specifically, the transverse walls extend from an interior surface of the posterior flap 348a and extend up to the anterior flap 348b as a plurality of protrusions (Transverse walls shown dashed). <i>Id.</i>, 14:21-47; These transverse walls 348a extend from an interior surface of the anterior flap 348b and are integral to the anterior flap 348b. <i>Id.</i>, 14:25-30.

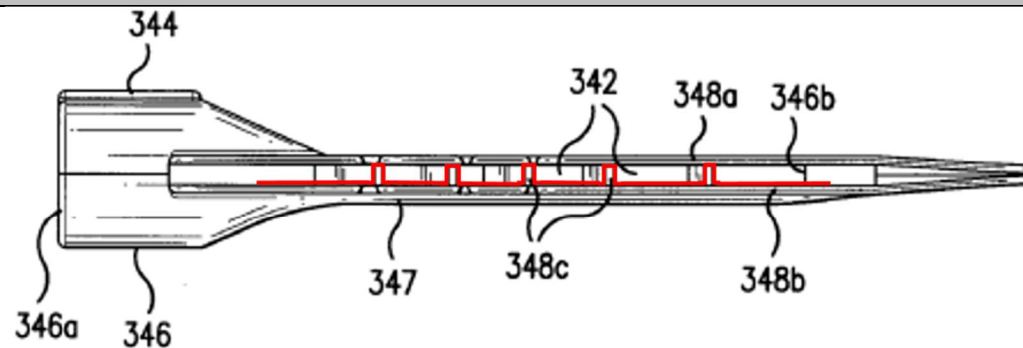


FIG. 23C

The transverse walls 348c extend toward the posterior layer 348a from the interior surface of the anterior flap 348b and connect to the posterior flap 348a. *Id.*, 14:21-63. The transverse walls 348c form crests in a wave shape and the channels 342 form troughs in a wave shape. Annotated FIG. 23C shown below illustrates the square wave shape formed by the presence of absence of the transverse walls.

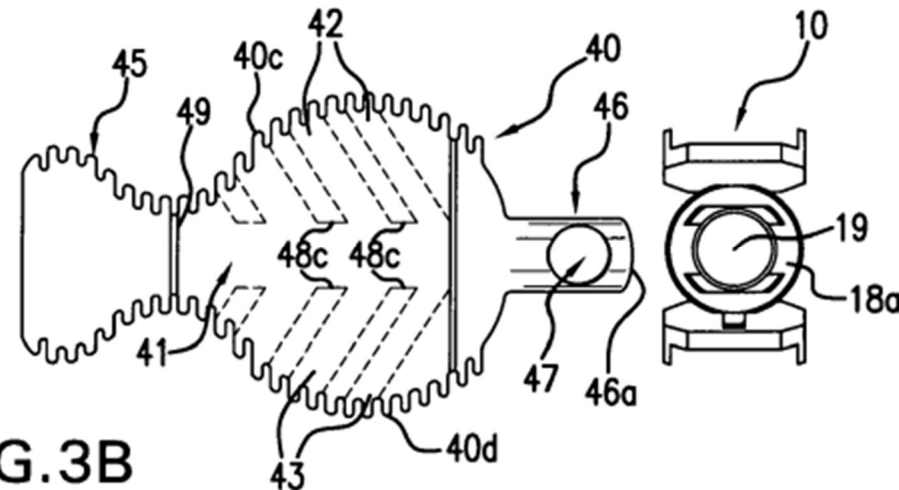
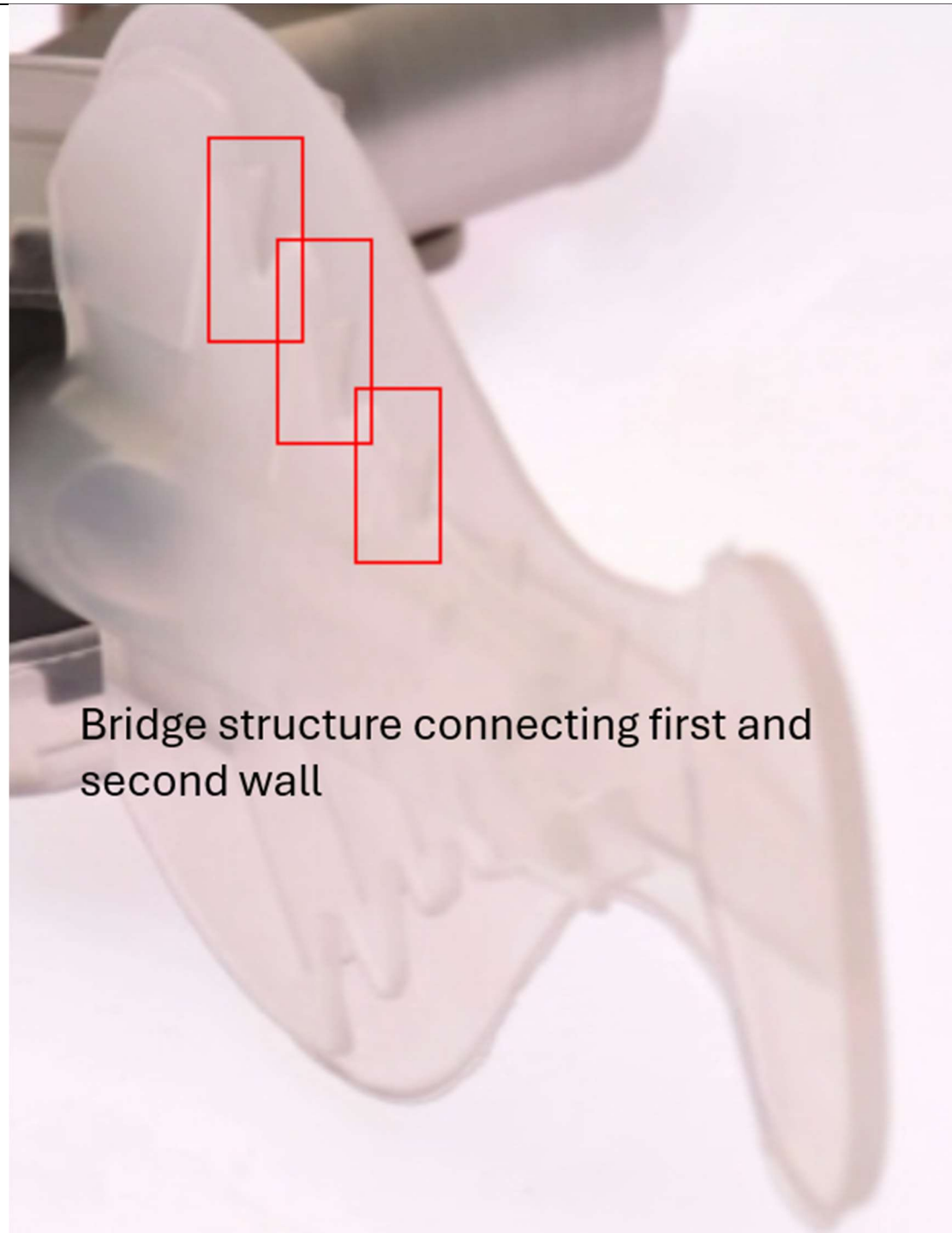


FIG. 3B

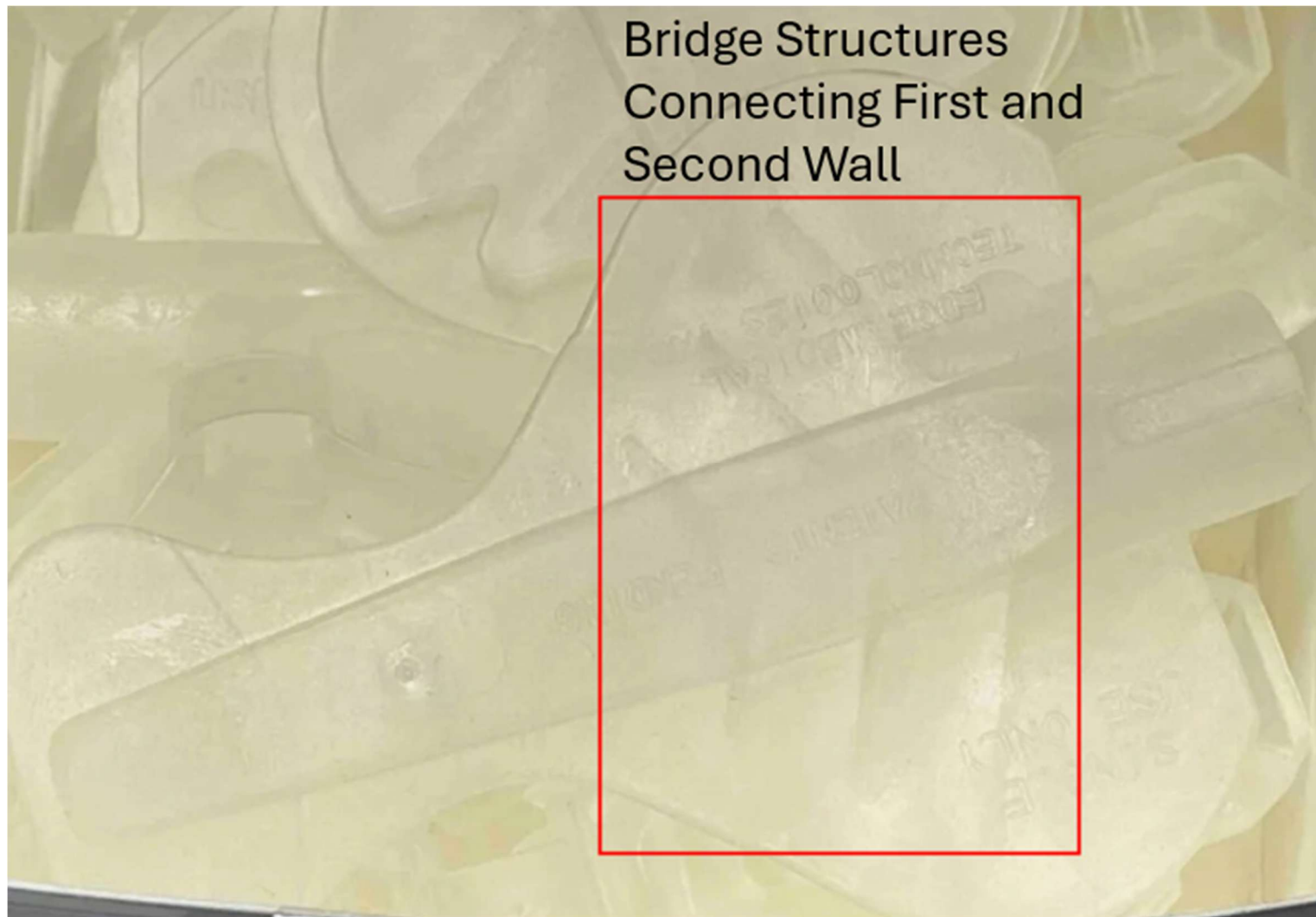
FIG. 3B also illustrates the wave shape from a top-view.

Elements 42 and 43 illustrate the channels, or troughs, and element 48c illustrates the crests. While FIG. 3B is directed to a different embodiment than the embodiment shown in FIGs. 23A-C, Black explains that “the tongue shield aspirator 340 includes features that are similar to those described above with the tongue shield aspirators 40, 240 shown in FIGs. 3, 4.” *Id.*, 11:55-60, 14:2-5. Moreover, the embodiment of FIG. 23 also includes transverse walls and channels. *Id.*, 14:21-47. Thus, FIG. 3B further informs the structure of the tongue shield aspirator 340. Nevertheless, to the extent

The '969 Patent	Exemplary Disclosures in the Prior Art
	obviousness is required here, combining features between the embodiments within the same reference “does not require a leap of inventiveness.” <i>Boston</i>, 554 F.3d at 991. While this feature seemingly was found to be the point of novelty, Ascentcare notes that during prosecution of the parent application, the same Examiner found that limitation 19(e) was taught by Black. Likewise, AirBug also discloses the same bridge structures:

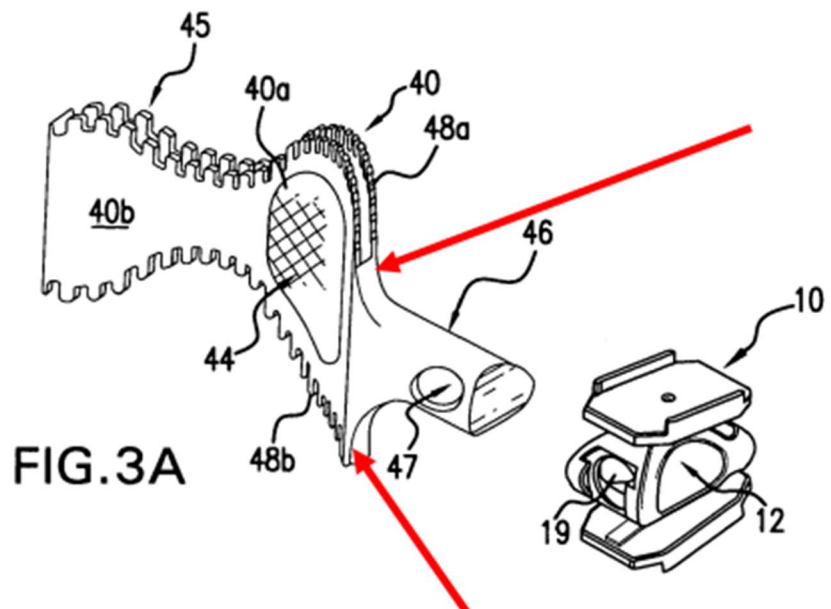


Bridge structure connecting first and second wall



To the extent that Solmetex disagrees that AirBug discloses troughs and crests, Black Elements 42 and 43 illustrate the channels, or troughs, and element 48c illustrates the crests. While FIG. 3B is directed to a different embodiment than the embodiment shown in FIGs. 23A-C, Black explains that “the tongue shield aspirator 340 includes features that are similar to those described above with the tongue shield aspirators 40, 240 shown in FIGs. 3, 4.” *Id.*, 11:55-60, 14:2-5. Moreover,

The '969 Patent	Exemplary Disclosures in the Prior Art
	the embodiment of FIG. 23 also includes transverse walls and channels. <i>Id.</i>, 14:21-47. Thus, FIG. 3B further informs the structure of the tongue shield aspirator 340. Nevertheless, to the extent obviousness is required here, combining features between the embodiments within the same reference “does not require a leap of inventiveness.” <i>Boston</i>, 554 F.3d at 991.
19[f] a connecting wall that connects the one or more edges of the first wall to one or more corresponding edges of the second wall across a span between the first wall and the second wall;	FIG. 23A FIG. 19 Black teaches a connecting wall that connects one or more edges of the posterior layer 348a to one or more edges of the anterior layer 348b across a span between to the two layers. Black, Fig. 23A; Fig. 19.



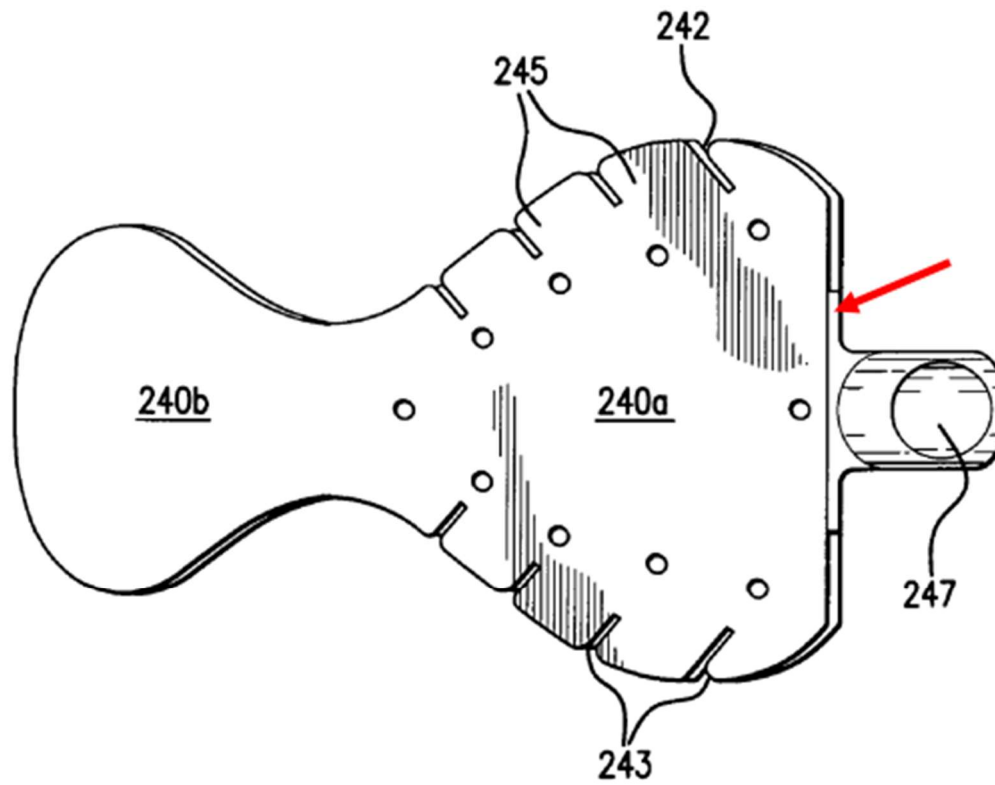
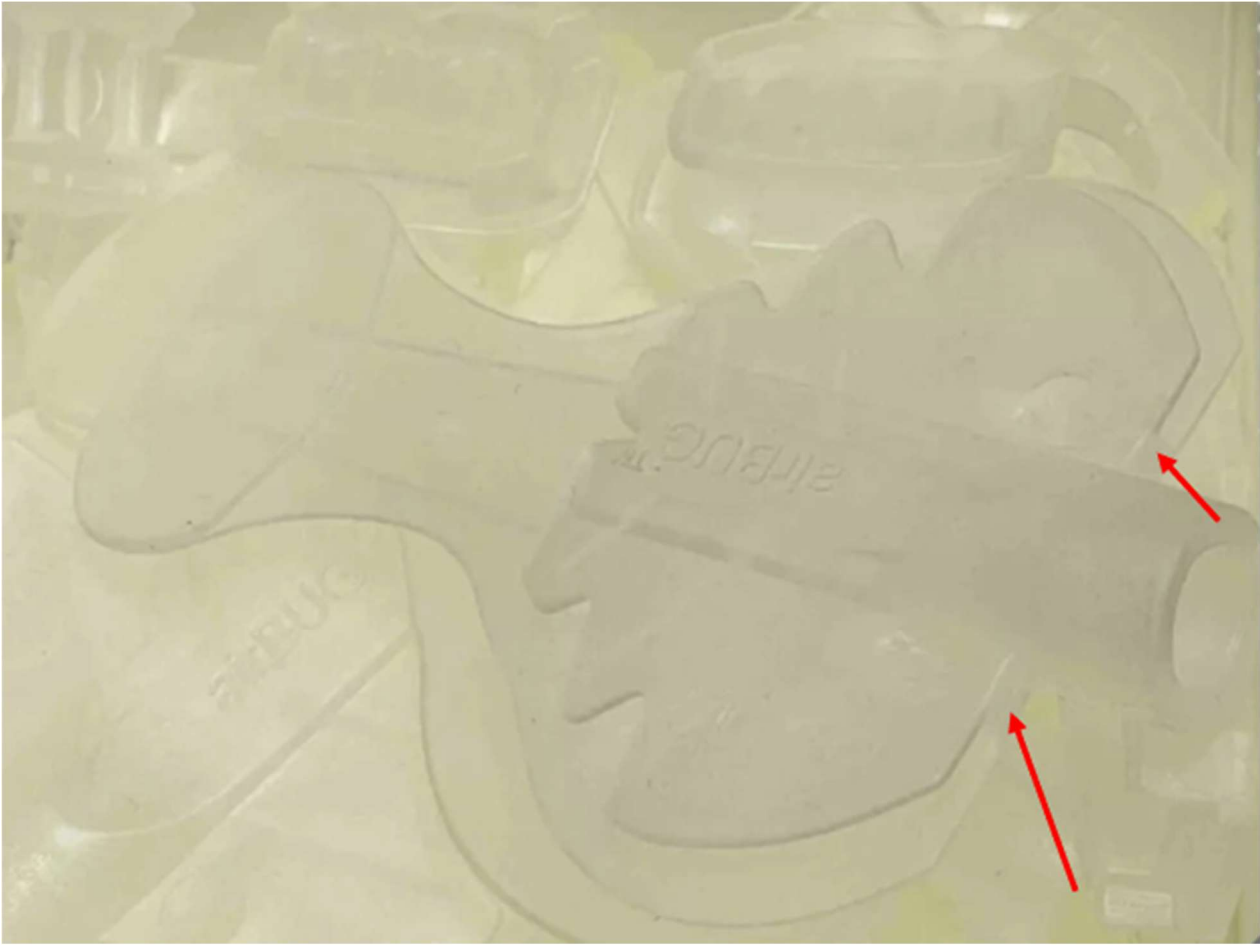


FIG. 4C

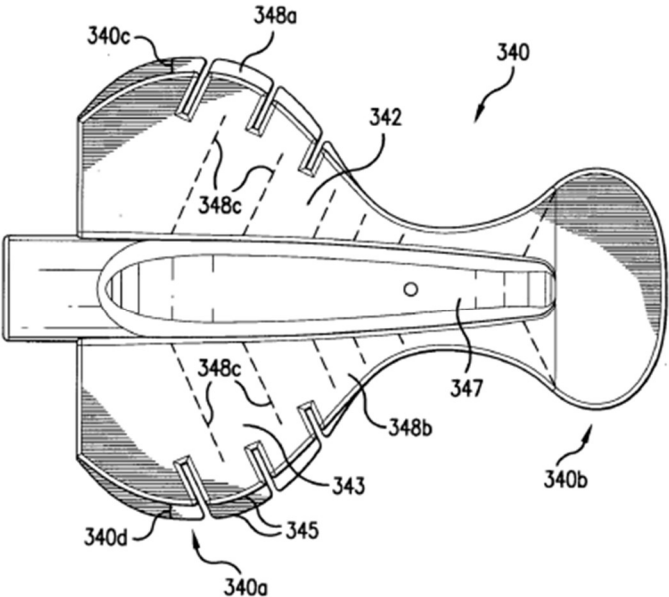
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The '969 Patent	Exemplary Disclosures in the Prior Art
	FIG. 24D To the extent Solmetex attempts to argue that the tongue aspirator 340 fails to disclose a connecting wall, such argument fails, as figures from other “substantially similar” embodiments clearly show a connecting wall. <i>Id.</i>, 11:55-60, 14:2-5. As can be seen from multiple embodiments above, Black teaches a connecting wall that connects one or more edges of the posterior layer to one or more edges of the anterior layer across the span between the two layers. All of these embodiments are “substantially similar.” <i>Id.</i>, 16:17-19, 14:2-5, 11:55-60, 6:53-60. To the extent Solmetex argues that the tongue aspirator 340 lacks the connecting wall that is present in almost every other embodiment of Black, combining features between the embodiments of a single reference “does not require a leap of inventiveness.” <i>Boston</i>, 554 F.3d at 991. Moreover, it would have been obvious to include the connecting wall shown in, for example, FIG. 4C in the embodiment shown in tongue shield aspirator 340 to provide additional structural integrity for the tongue shield aspirator. Finally, to the extent Solmetex argues that any of the above embodiments do not show a connecting wall formed across an entire “edge,” and only partially extends across an edge, it would have been obvious to widen the connecting wall disclosed by Black as such changes would simply be a change in size/proportion. MPEP 2144.04(IV)(A). This change is particularly true when other embodiments, such as FIG 1 and FIG. 3A show a connecting wall spanning the entire end of the mouthpiece. Black, FIGs. 1, 3A. Moreover, the plain language of claim 19 lacks any recitation of “entire” edges, so any such argument finds no basis in the claim language.

The '969 Patent	Exemplary Disclosures in the Prior Art
	Likewise, under Solmetex's construction of the "connecting wall," the AirBug Mouthpiece also discloses a connecting wall that connects the one or more edges of the first wall to one or more corresponding edges of the second wall across a span between the first wall and the second wall: 
19[g] a suction connector portion connected to a first end of the main body portion, the suction connector configured to	

The '969 Patent	Exemplary Disclosures in the Prior Art
connect a vacuum source to the interior space of the pocket; and	FIG. 18 FIG. 19 Black teaches a hollow neck 346 that connects the channels of the tongue shield aspirator to an evacuation tube that connects to an HVE valve (vacuum source). Black, 15:21-51; 16:1-3. The hollow neck 346 is formed at the first end of the tongue shield aspirator 340. Likewise, AirBug Mouthpiece discloses a suction connector portion connected to a first end of the main body portion, the suction connector configured to connect a vacuum source to the interior space of the pocket:

The '969 Patent	Exemplary Disclosures in the Prior Art
	 The image shows a close-up of a dental mold, likely made of a light-colored, translucent material. A red rectangular box is drawn on the left side of the mold, highlighting a specific feature. The mold has several curved, raised sections. The word "airBUG™" is embossed on the central part of the mold. To the right of the red box, the word "OnTime" is also embossed. The background is a light, textured surface.

The '969 Patent	Exemplary Disclosures in the Prior Art
19[h] a cheek retractor connected to a second end of the main body portion, wherein the second end is opposite the first end of the main body portion.	 FIG. 23A Black teaches a cheek retractor 340b formed at the end opposite the evacuation tube. <i>Id.</i>, 14:5-9. Likewise, AirBug Mouthpiece teaches a cheek retractor connected to a second end of the main body portion, wherein the second end is opposite the first end of the main body portion:

The '969 Patent	Exemplary Disclosures in the Prior Art
	 Thus, Black or AirBug Mouthpiece, alone, teaches all of the limitations of claim 19. To the extent any combination of embodiments is required, then the claims are obvious in view of the embodiments of Black, which are easily combinable if not already combined as taught by the specification. <i>Id.</i>, 16:17-19, 14:2-5, 11:55-60, 6:53-60

EXHIBIT A-2 (Black or AirBug in View of One or Two of Hirsch, Isolite Mouthpiece, and/or Park, and the Skill of a PHOSITA)
Initial Invalidity Chart for U.S. Patent No. 11,589,969

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, and Hirsch were patented or printed in a publication more than one year prior to the priority date of the '969 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. 11,589,969.

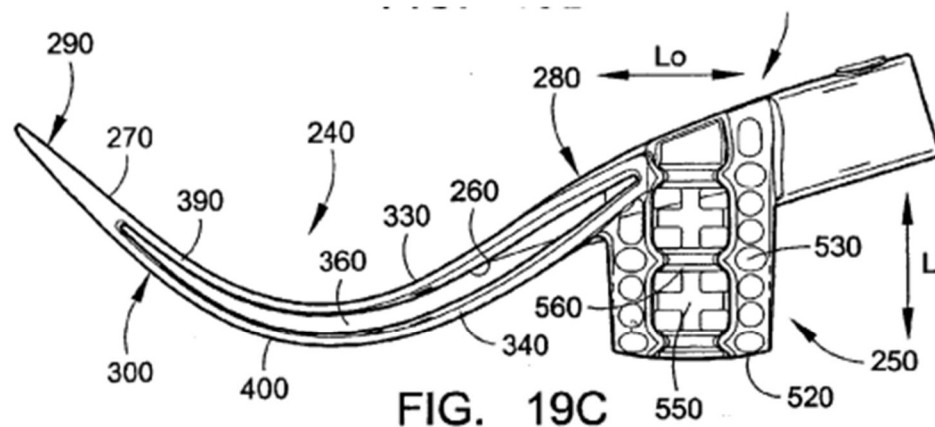
Pursuant to pre-AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, the AirBug Mouthpiece and Isolite Mouthpiece² were on sale or in public use more than one year prior to the priority date of the '969 Patent, and therefore anticipates and/or renders obvious, either alone or in 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. 11,589,969.

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 '969 Patent	Exemplary Disclosures in the Prior Art
19[a] A dental mouthpiece comprising:	To the extent the preamble is limiting, each of the references discussed herein is a dental mouthpiece.
19[b] a main body portion configured as a pocket at least partially enclosing an interior space, the pocket defined by:	

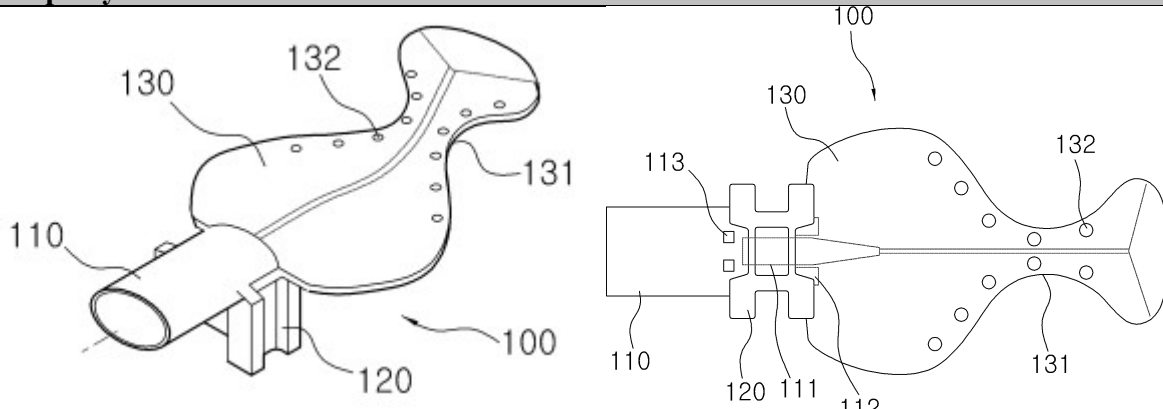
The '969 Patent	Exemplary Disclosures in the Prior Art
	FIG. 23A Black discloses a tongue shield aspirator 340 configured to retract a patient's tongue. Black, 14:1-9. Specifically, Black discloses a first flap 340a connected to a second flap 340b, where the first flap 340a retracts a patient's tongue and the second flap 340b retracts a patient's cheek. <i>Id.</i>, 14:5-9. Black and further explains that the first flap 340a comprises a posterior layer 348a and an anterior layer 348b spaced apart from each other by transverse walls 348c. <i>Id.</i>, 14:25-30. The posterior layer 348a, the anterior layer 348b, and the transverse walls 348c at least partially enclose an interior space, such as channels 342, 343 and a longitudinal lumen that provide conduits for debris and fluid evacuation through the interior space. <i>Id.</i>, 14:21-63. The two layers 348a/b and the connecting wall at least partially enclose the channels 343, 342 and a longitudinal lumen, and thus, are a pocket under the positions taken by Solmetex in its Initial Infringement Contentions. Solmetex asserts that both VacuLux mouthpieces' open-sided mouthpiece is a "pocket."

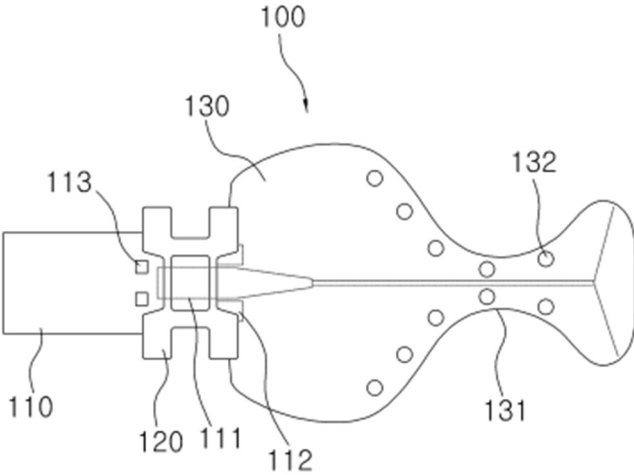
The '969 Patent	Exemplary Disclosures in the Prior Art
	Further, the first flap 340a (main body) of Black comprises three walls – the posterior layer 348a, the anterior layer 348b, and a sidewall. These three walls at least partially enclose the interior space between the posterior layer 348a and the anterior layer 348b. Thus, according to the claim’s definition, Black’s main body is formed as a pocket. Under Solmetex’s construction of the term “pocket” and “partially enclosing an interior space” for infringement, the AirBug Mouthpiece also discloses a pocket at least partially enclosing an interior space:  To the extent that Solmetex disputes that there is a “pocket” or “partially enclosing an interior space,” under Solmetex’s construction of the term “pocket” and “partially enclosing an interior space,” both Hirsch and the Isolite Mouthpiece disclose a “pocket” that “partially enclose[es] an interior space.”

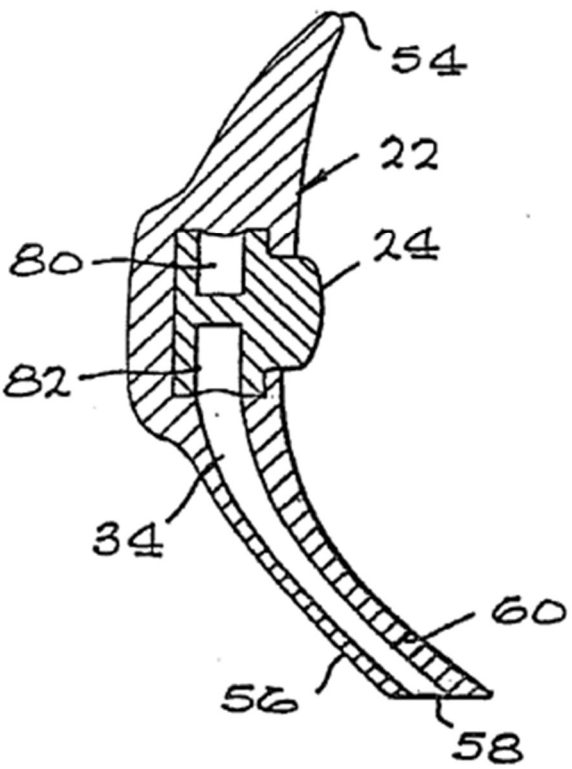


Likewise, Park also discloses such a pocket:

The tongue retraction portion 130 is configured as a pocket defining an interior space. *Id.*, ¶ 26. In fact, the tongue retraction portion 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. *Id.*, FIG. 2.

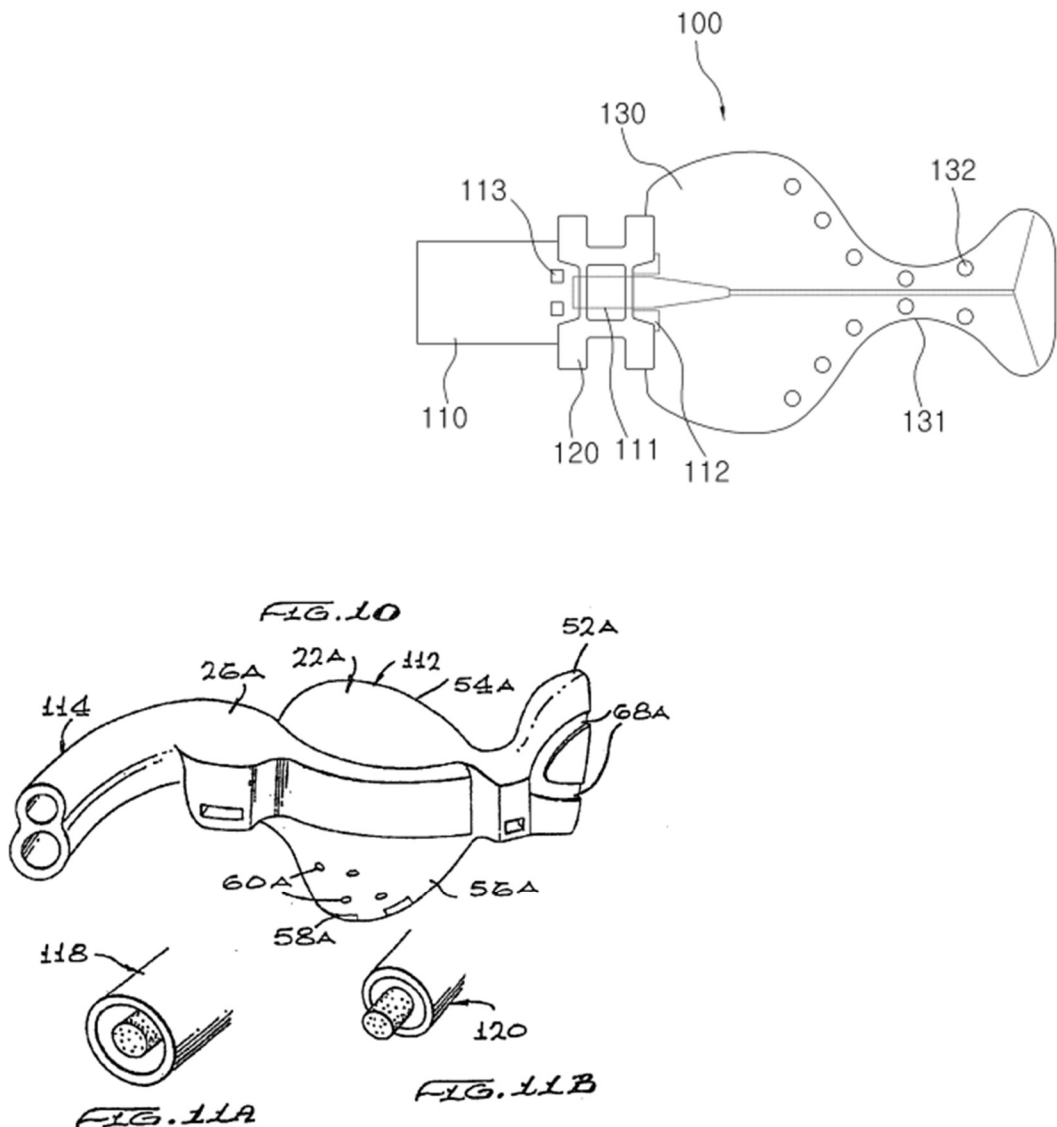
The '969 Patent	Exemplary Disclosures in the Prior Art
	 A PHOSITA would recognize Park as an enclosed mouthpiece with sidewalls from FIGs. 1-3 of Park. FIG. 2 even illustrates the sidewalls extending into the insertion port 110, thereby clearly demonstrating their presence. The specification further 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 retraction portion 130. <i>Id.</i>, 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. <i>Id.</i>, ¶ 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 <i>Id.</i>, FIG. 2), is enclosed and extends into an interior space of the tongue retraction portion 130. <i>Id.</i>, ¶ 26-31. Indeed, Park specifically teaches that the tongue retraction portion 130 extends from the insertion port 110. <i>Id.</i>, ¶ 26. The suction ports 112 only extend partially into the main body 130, and the suction ports 112 do not extend to the through-holes 132 as a dedicated channel. <i>Id.</i>, ¶ 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. <i>Id.</i>, ¶¶ 30-31, FIG. 2. If the mouth prop 100 did not include an interior open space formed in the tongue portion 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." <i>Id.</i>, ¶ 10.

The '969 Patent	Exemplary Disclosures in the Prior Art
	 A PHOSITA would have found it obvious to combine the teachings of Black or AirBug in combination of one or more of Hirsch, Isolite, and/or Park to have a partially enclosed space to effectuate suction of fluids through the pocket, which is the purpose of these mouthpieces.

The '969 Patent	Exemplary Disclosures in the Prior Art
	<i>See Hirsch, Fig. 10.</i>  <i>FIG. 8A</i>

The '969 Patent	Exemplary Disclosures in the Prior Art
19[c] a first wall that includes one or more perforations in communication with the interior space of the pocket, the first wall having a shape defined by one or more edges along one or more sides;	FIG. 23B The main body 340a of Black includes a posterior layer 348a, which is a first wall. <i>Id.</i>, 14:25-30; As shown, the posterior layer 348a has a shape defined by one or more edges along one or more sides. <i>Id.</i>, FIG. 23B. FIG. 23B shows at least three edges: a superior suction connector edge (left side of FIG. 23B above the neck 346), an inferior suction connector edge (left side of FIG. 23B below the neck 346), and a continuous flap edge defining the inferior and superior sides of the first flap. <i>Id.</i>, 14:43-47, 14:64-15:20 The posterior layer 348a includes two perforations in communication with the interior space of the pocket shown in FIG. 23B. Likewise, the AirBug Mouthpiece also includes a first wall that includes one or more perforations in communication with the interior space of the pocket, the first wall having a shape defined by one or more edges along one or more sides:

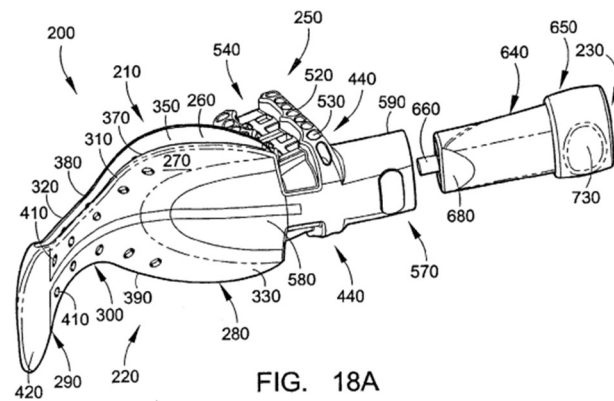
The '969 Patent	Exemplary Disclosures in the Prior Art
	 To the extent that Solmetex disagrees that Black and the AirBug Mouthpiece disclose perforations those, those perforations are disclosed by Park, Hirsch, or Isolite Mouthpiece:

The '969 Patent	Exemplary Disclosures in the Prior Art
	 The figure contains three technical drawings. The top drawing is a side cross-sectional view of a dental device, labeled 100. It shows a handle assembly 110 with a trigger 113 and a piston 111. A needle 112 is connected to the handle and passes through a curved, flexible member 130. The needle has a distal tip 131 and a proximal hub 132. The middle drawing is a perspective view of a curved, flexible member, labeled FIG. 10. It features a handle 114, a trigger 26A, a piston 22A, and a needle 112. The member has a curved shape with a distal end 52A and a proximal end 54A. A trigger 68A is located on the proximal end. The bottom drawing shows two cross-sectional views of the needle, labeled FIG. 11A and FIG. 11B. FIG. 11A shows a cross-section of the needle with a central lumen 118. FIG. 11B shows a cross-section of the needle with a central lumen 120.

The '969 Patent	Exemplary Disclosures in the Prior Art
	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).

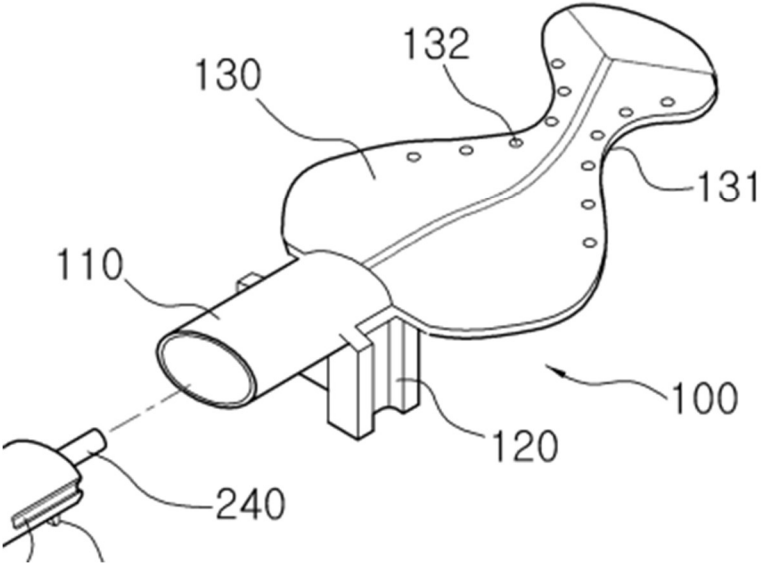
The '969 Patent	Exemplary Disclosures in the Prior Art
19[d] a second wall having a shape that corresponds to the shape of the first wall, the shape of the second wall defined by one or more corresponding edges along one or more corresponding sides,	FIG. 23A The main body 340a of Black includes an anterior layer 348b, which is a second wall. <i>Id.</i>, 14:25-30. As shown, the anterior layer 348b has a shape defined by one or more edges along one or more sides. The posterior layer 348a corresponds in shape to the anterior layer 348b, as shown in FIG. 23A. The anterior layer 348a matches the shape of the posterior layer 348a and is very similar in size. Thus, the anterior layer corresponds to the shape of the posterior layer. Black explains that the posterior layer 348a has a profile that extends beyond the profile of the anterior flap 348b, which can be seen in FIG. 23A. <i>Id.</i>, 15:57-63. Solmetex's own infringement contentions show alleged infringement of a mouthpiece having a lower flap that is far more different in size and shape than what Black shows.. Thus, according to Solmetex's own construction, two walls do not need to be identical in shape or size to have "corresponding edges along one or more corresponding sides." Thus, according to Solmetex's construction, Black's anterior layer and posterior layer having corresponding edges along corresponding sides and correspond in shape. As discussed in the cover pleading, Ascentcare also disputes Solmetex's apparent construction of "corresponding" consistent with above.

The '969 Patent	Exemplary Disclosures in the Prior Art
	Regardless, to the extent the anterior and posterior layers 348a/b must be identical in shape and size to have “one or more corresponding edges along one or more corresponding sides,” Black discloses several embodiments having identical anterior and posterior layers. <i>Id.</i>, FIGs. 1, 3B, 4C, 13. To the extent obviousness is required here, combining features between embodiments within the same reference “does not require a leap of inventiveness.” <i>Boston Scientific Scimed, Inc. v. Cordis Corp.</i>, 554 F.3d 982, 991 (Fed. Cir. 2009). Moreover, changes in the size and shape of the posterior wall are obvious. MPEP 2144.04(IV)(A)-(B). As such, to the extent “corresponds to” is construed to mean “identical to,” it would have been obvious to resize and shape the posterior layer 348a to be identical to the anterior layer 348b in view of Black’s other embodiments. Black, FIGs. 1, 3B, 4C, 13 Under Solmetex’s construction of the word “corresponds” for infringement, AirBug also discloses a second wall having a shape that corresponds to the shape of the first wall, the shape of the second wall defined by one or more corresponding edges along one or more corresponding sides:  To the extent that Solmetex disputes that the AirBug Mouthpiece includes “corresponding” walls in direct contrast to its infringement contentions, both Hirsch or the Isolite Mouthpiece disclose “corresponding” walls that are identically sized and shaped:



Hirsch, Fig. 18A.

Park discloses the same:

The '969 Patent	Exemplary Disclosures in the Prior Art
	 Changes in the size and shape of the posterior wall are obvious to a PHOSITA. MPEP 2144.04(IV)(A)-(B). Further, a change in the shape of the wall to be identical would have been obvious because making the shapes identical improves manufacturability, rigidity, or suction of fluid in more targeted locations, including on the backside or top and bottom of the mouthpiece while in use.

The '969 Patent	Exemplary Disclosures in the Prior Art
19[e] wherein the second wall includes a bridge structure that includes a plurality of protrusions integral with and protruding from an interior surface of the second wall within the interior space of the pocket, wherein the protrusions of the bridge structure protrude from the interior surface of the second wall toward the first wall in a wave shape comprising one or more crests and one or more troughs, and	FIG. 23A Black teaches transverse walls 348c spaced apart from each other to form channels 342 therebetween. <i>Id.</i>, 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.” <i>Id.</i>, 14:38-47. 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> More specifically, the transverse walls extend from an interior surface of the posterior flap 348a and extend up to the anterior flap 348b as a plurality of protrusions (Transverse walls shown dashed). <i>Id.</i>, 14:21-47; These transverse walls 348a extend from an interior surface of the anterior flap 348b and are integral to the anterior flap 348b. <i>Id.</i>, 14:25-30.

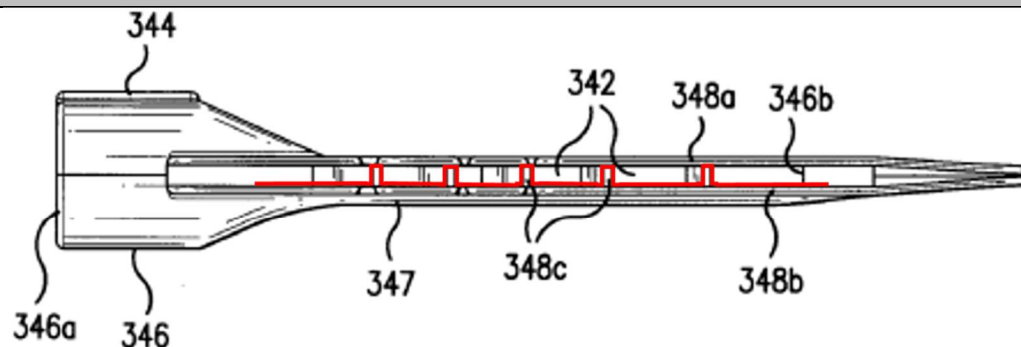


FIG. 23C

The transverse walls 348c extend toward the posterior layer 348a from the interior surface of the anterior flap 348b and connect to the posterior flap 348a. *Id.*, 14:21-63. The transverse walls 348c form crests in a wave shape and the channels 342 form troughs in a wave shape. Annotated FIG. 23C shown below illustrates the square wave shape formed by the presence of absence of the transverse walls.

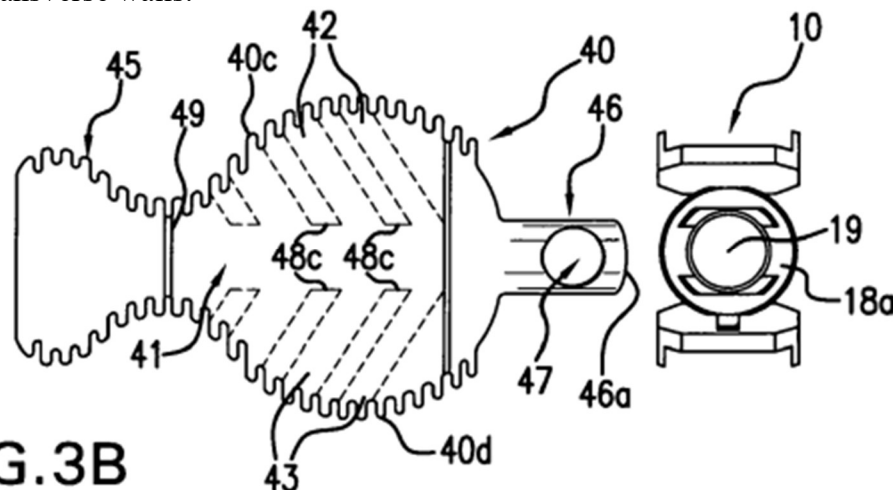
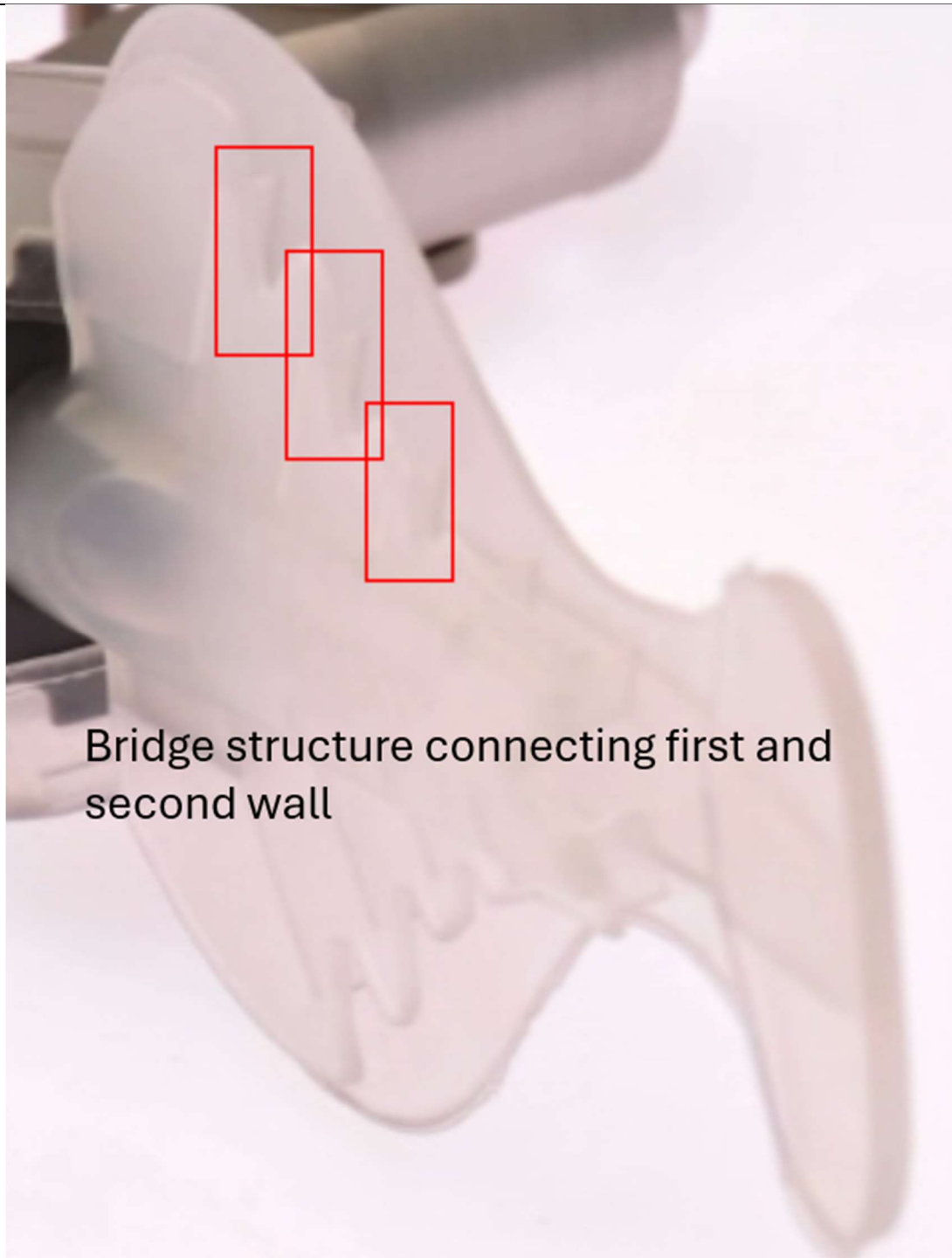


FIG. 3B

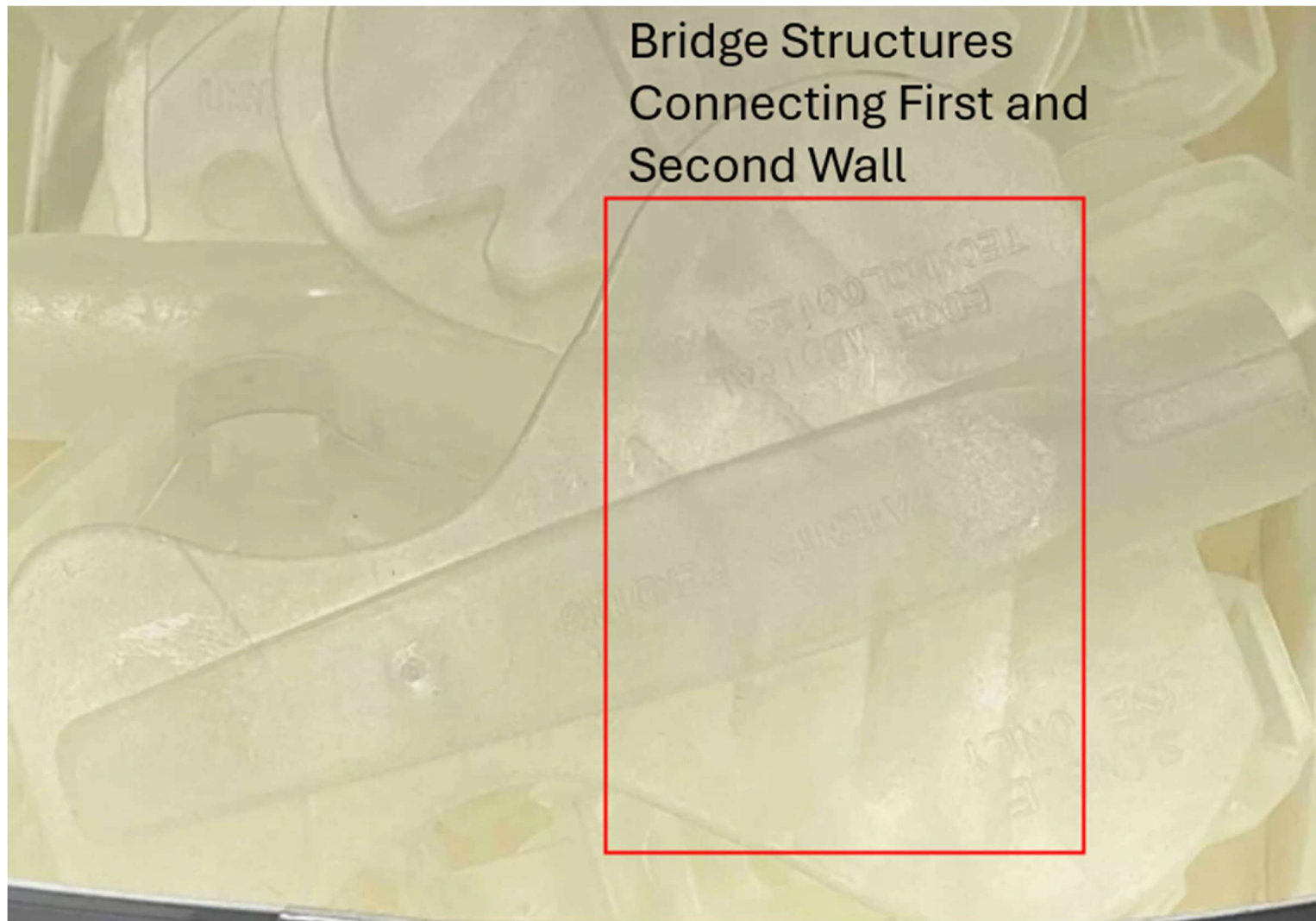
FIG. 3B also illustrates the wave shape from a top-view.

Elements 42 and 43 illustrate the channels, or troughs, and element 48c illustrates the crests. While FIG. 3B is directed to a different embodiment than the embodiment shown in FIGs. 23A-C, Black explains that “the tongue shield aspirator 340 includes features that are similar to those described above with the tongue shield aspirators 40, 240 shown in FIGs. 3, 4.” *Id.*, 11:55-60, 14:2-5. Moreover, the embodiment of FIG. 23 also includes transverse walls and channels. *Id.*, 14:21-47. Thus, FIG. 3B further informs the structure of the tongue shield aspirator 340. Nevertheless, to the extent

The '969 Patent	Exemplary Disclosures in the Prior Art
	obviousness is required here, combining features between the embodiments within the same reference “does not require a leap of inventiveness.” <i>Boston</i>, 554 F.3d at 991. While this feature seemingly was found to be the point of novelty, Ascentcare notes that during prosecution of the parent application, the same Examiner found that limitation 19(e) was taught by Black. Likewise, AirBug also discloses the same bridge structures:

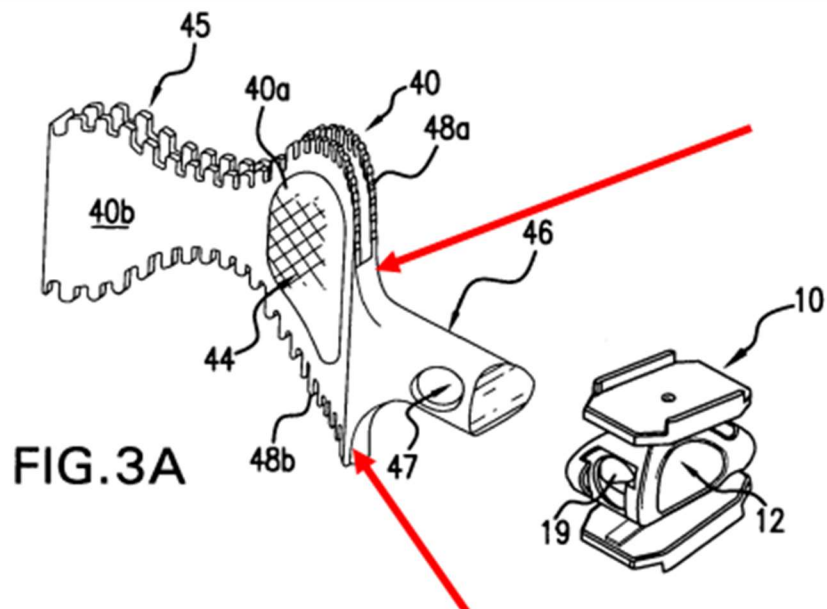


Bridge structure connecting first and second wall



To the extent that Solmetex disagrees that AirBug discloses troughs and crests, Black Elements 42 and 43 illustrate the channels, or troughs, and element 48c illustrates the crests. While FIG. 3B is directed to a different embodiment than the embodiment shown in FIGs. 23A-C, Black explains that “the tongue shield aspirator 340 includes features that are similar to those described above with the tongue shield aspirators 40, 240 shown in FIGs. 3, 4.” *Id.*, 11:55-60, 14:2-5. Moreover, the embodiment of FIG. 23 also includes transverse walls and channels. *Id.*, 14:21-47. Thus, FIG. 3B further informs the

The '969 Patent	Exemplary Disclosures in the Prior Art
19[f] a connecting wall that connects the one or more edges of the first wall to one or more corresponding edges of the second wall across a span between the first wall and the second wall;	structure of the tongue shield aspirator 340. Nevertheless, to the extent obviousness is required here, combining features between the embodiments within the same reference “does not require a leap of inventiveness.” <i>Boston</i>, 554 F.3d at 991. FIG. 23A FIG. 19 Black teaches a connecting wall that connects one or more edges of the posterior layer 348a to one or more edges of the anterior layer 348b across a span between to the two layers. Black, Fig. 23A; Fig. 19.



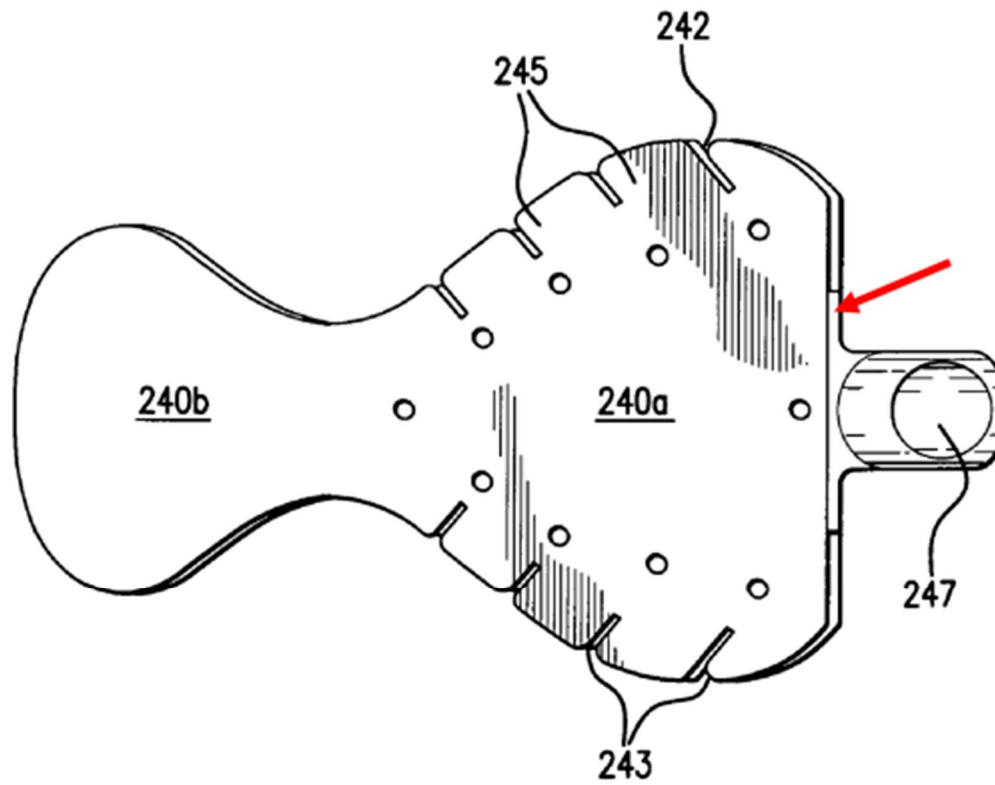
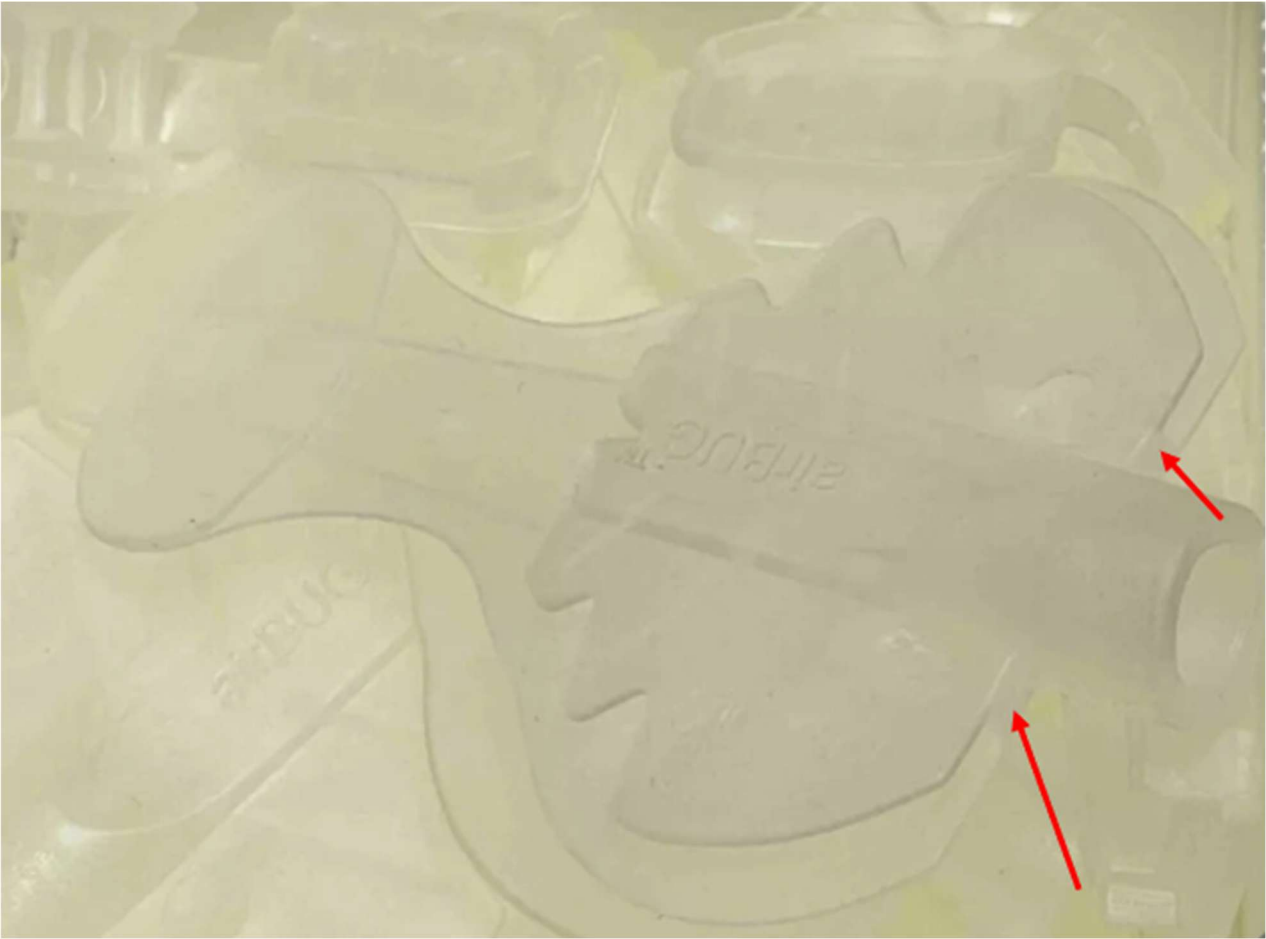


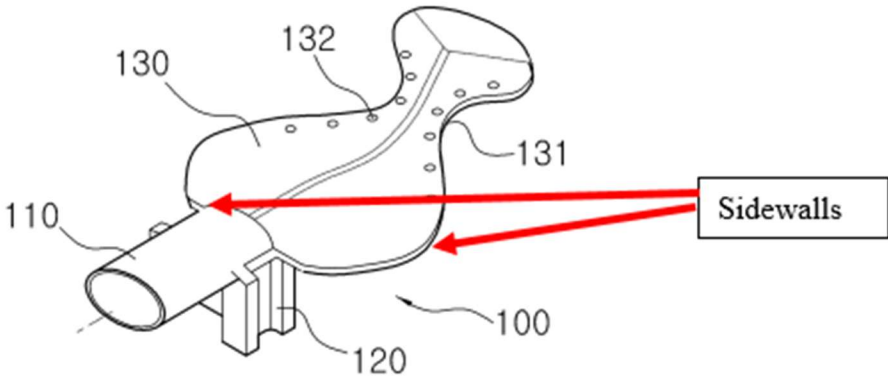
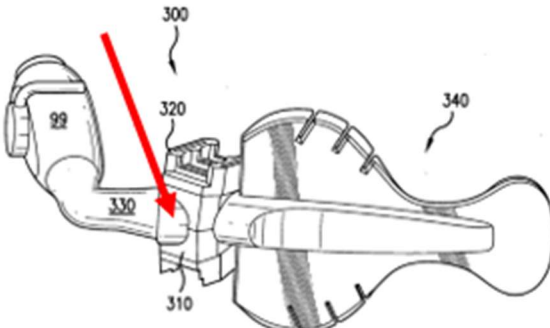
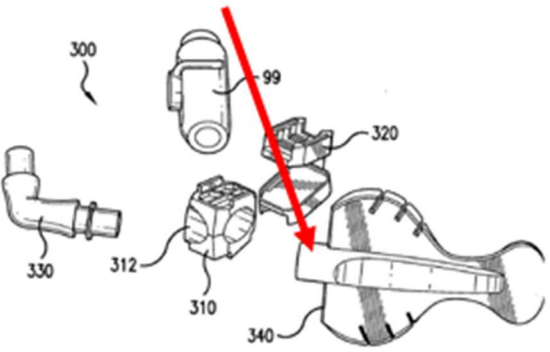
FIG. 4C

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The '969 Patent	Exemplary Disclosures in the Prior Art
	FIG. 24D To the extent Solmetex attempts to argue that the tongue aspirator 340 fails to disclose a connecting wall, such argument fails, as figures from other “substantially similar” embodiments clearly show a connecting wall. <i>Id.</i>, 11:55-60, 14:2-5. As can be seen from multiple embodiments above, Black teaches a connecting wall that connects one or more edges of the posterior layer to one or more edges of the anterior layer across the span between the two layers. All of these embodiments are “substantially similar.” <i>Id.</i>, 16:17-19, 14:2-5, 11:55-60, 6:53-60. To the extent Solmetex argues that the tongue aspirator 340 lacks the connecting wall that is present in almost every other embodiment of Black, combining features between the embodiments of a single reference “does not require a leap of inventiveness.” <i>Boston</i>, 554 F.3d at 991. Moreover, it would have been obvious to include the connecting wall shown in, for example, FIG. 4C in the embodiment shown in tongue shield aspirator 340 to provide additional structural integrity for the tongue shield aspirator. Finally, to the extent Solmetex argues that any of the above embodiments do not show a connecting wall formed across an entire “edge,” and only partially extends across an edge, it would have been obvious to widen the connecting wall disclosed by Black as such changes would simply be a change in size/proportion. MPEP 2144.04(IV)(A). This change is particularly true when other embodiments, such as FIG 1 and FIG. 3A show a connecting wall spanning the entire end of the mouthpiece. Black, FIGs. 1, 3A. Moreover, the plain language of claim 19 lacks any recitation of “entire” edges, so any such argument finds no basis in the claim language.

The '969 Patent	Exemplary Disclosures in the Prior Art
	Likewise, under Solmetex's construction of the "connecting wall," the AirBug Mouthpiece also discloses a connecting wall that connects the one or more edges of the first wall to one or more corresponding edges of the second wall across a span between the first wall and the second wall:  To the extent that Solmetex disputes that the AirBug Mouthpiece includes a connecting wall in direct contrast to its infringement contentions, both Hirsch of the Isolite Mouthpiece disclose connecting walls:

The '969 Patent	Exemplary Disclosures in the Prior Art
	FIG. 19B FIG. 19C Park also discloses such a connecting wall: The main body 130 of Park has a sidewall connecting the anterior wall and the posterior wall. Park, FIG. 2.

The '969 Patent	Exemplary Disclosures in the Prior Art
	
19[g] a suction connector portion connected to a first end of the main body portion, the suction connector configured to connect a vacuum source to the interior space of the pocket; and	 FIG. 18  FIG. 19 Black teaches a hollow neck 346 that connects the channels of the tongue shield aspirator to an evacuation tube that connects to an HVE valve (vacuum source). Black, 15:21-51; 16:1-3. The hollow neck 346 is formed at the first end of the tongue shield aspirator 340. Likewise, AirBug Mouthpiece discloses a suction connector portion connected to a first end of the main body portion, the suction connector configured to connect a vacuum source to the interior space of the pocket:

The '969 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. A red rectangular box is drawn on the left side of the mold, highlighting a specific feature. The word "airBUG™" is visible on the mold, and the word "OnTime" is visible on the right side. The mold has various curved and straight edges, suggesting it is a part of a larger dental appliance.

The '969 Patent	Exemplary Disclosures in the Prior Art
19[h] a cheek retractor connected to a second end of the main body portion, wherein the second end is opposite the first end of the main body portion.	FIG. 23A Black teaches a cheek retractor 340b formed at the end opposite the evacuation tube. <i>Id.</i>, 14:5-9. Likewise, AirBug Mouthpiece teaches a cheek retractor connected to a second end of the main body portion, wherein the second end is opposite the first end of the main body portion:

The '969 Patent	Exemplary Disclosures in the Prior Art
	 Thus, Black or AirBug Mouthpiece, alone, teaches all of the limitations of claim 19. To the extent any combination of embodiments is required, then the claims are obvious in view of the embodiments of Black, which are easily combinable if not already combined as taught by the specification. <i>Id.</i>, 16:17-19, 14:2-5, 11:55-60, 6:53-60

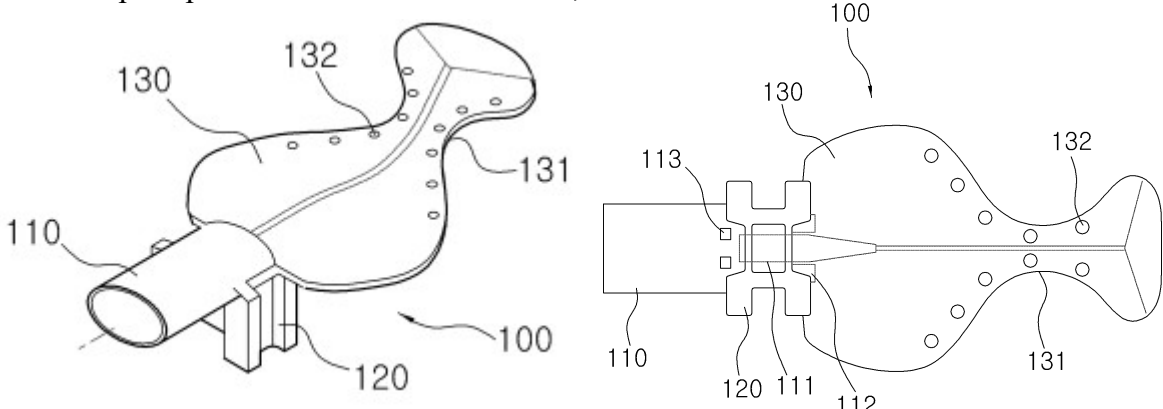
EXHIBIT A-3 (Park in View of One or Two of Black, AirBug, Baughan, and/or Johnson, and the Skill of a PHOSITA)
Initial Invalidity Chart for U.S. Patent No. 11,589,969

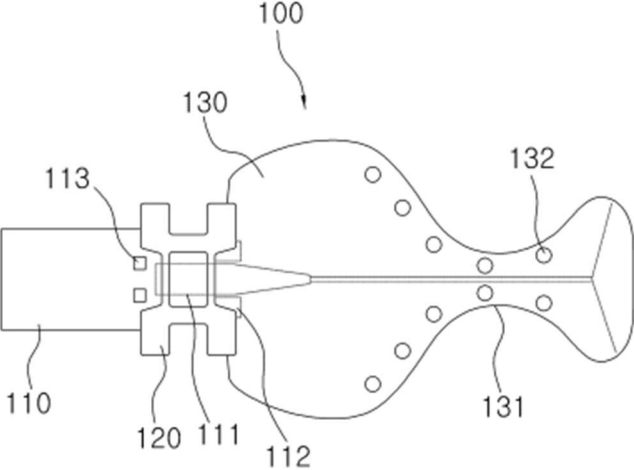
Ascentcare incorporates by reference the cover pleading to its Initial Invalidity Contentions. These Initial Invalidity Contentions, including these claim charts, are not an admission regarding claim scope or the accused products, and, in particular, that the accused products, including any current or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

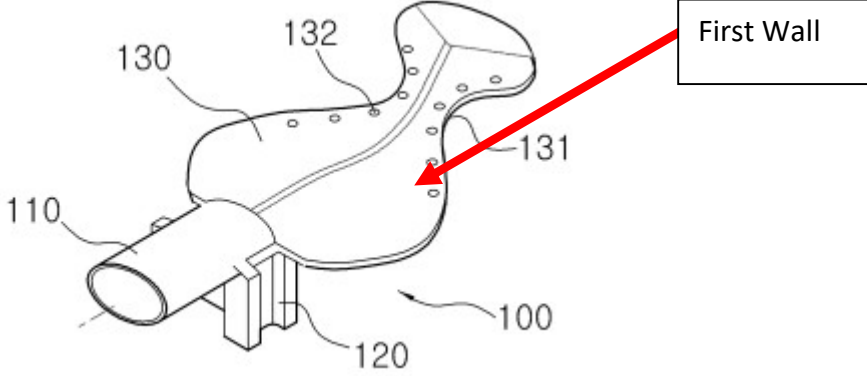
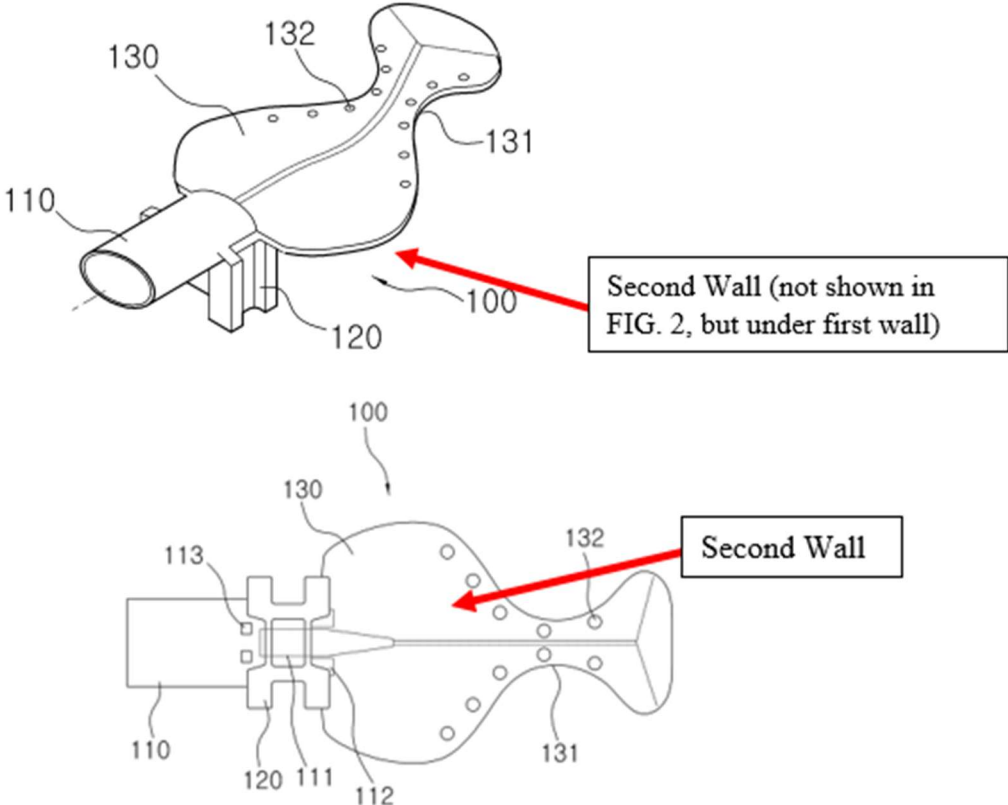
Pursuant to pre-AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below Park, Black, Baughan, Johnson were patented or printed in a publication more than one year prior to the filing date of the application, and therefore renders obvious, either alone or in combination with the other 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. 11,589,969.

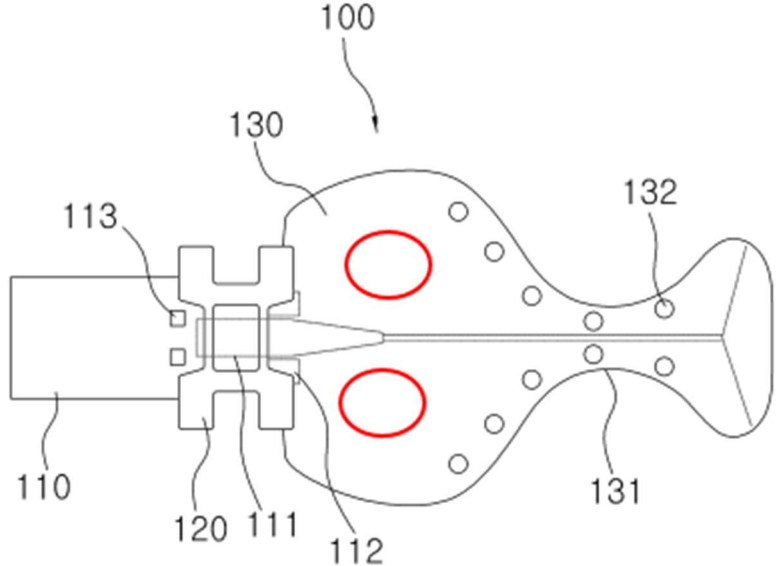
Pursuant to pre-AIA 35 U.S.C. § 103 and as described in the cover pleading and shown below, the AirBug Mouthpiece³ was on sale or in public use more than one year prior to the priority date of the '969 Patent, and therefore anticipates and/or renders obvious, either alone or in combination with the other 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. 11,589,969.

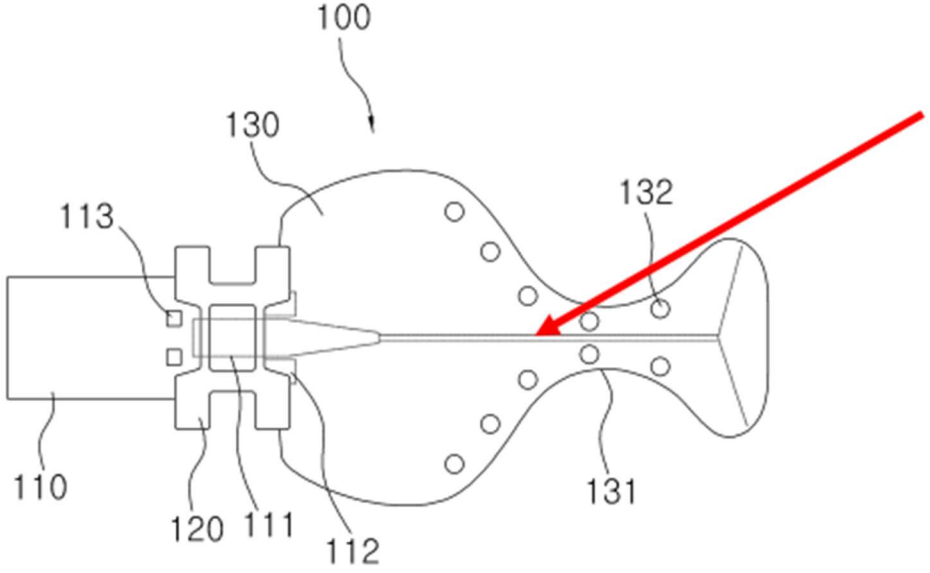
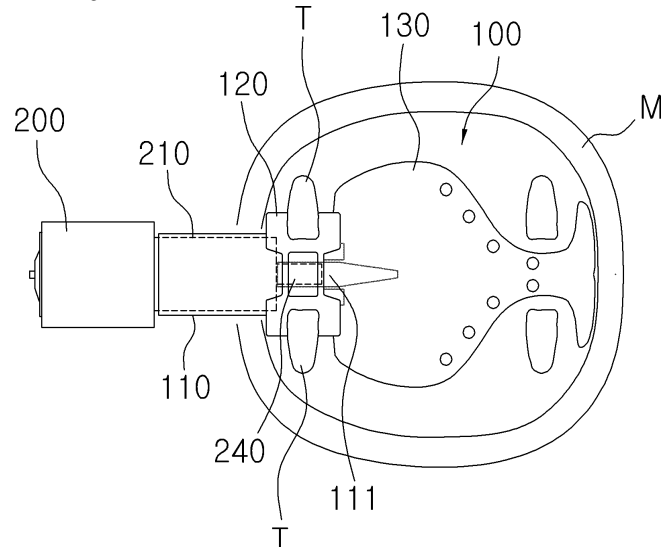
³ It is Ascentcare's understanding that several of the embodying products discussed herein may have multiple embodiments over the years. Discovery is ongoing, and Ascentcare has issued subpoenas seeking the prior art embodiments. To the extent that Ascentcare currently relies on more current embodiments 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.

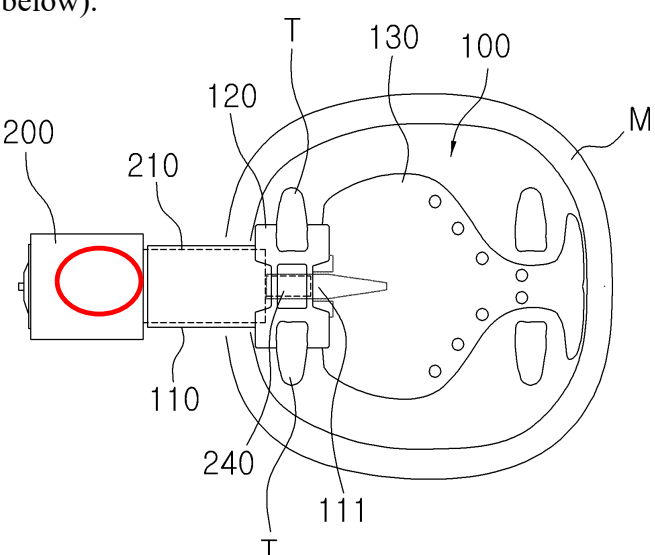
The '969 Patent	Exemplary Disclosures in the Prior Art
19[a] A dental mouthpiece comprising:	To the extent the preamble is limiting, each of the references discussed herein is a dental mouthpiece.
19[b] a main body portion configured as a pocket at least partially enclosing an interior space, the pocket defined by:	Park discloses a tongue retraction portion 130, which is a main body. Park, ¶ 26. The tongue retraction portion 130 includes a plurality of through holes 132, which are perforations. <i>Id.</i>, ¶ 31; FIG. 3. The tongue retraction portion 130 is configured as a pocket defining an interior space. <i>Id.</i>, ¶ 26. In fact, the tongue retraction portion 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. <i>Id.</i>, FIG. 2.  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. 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 retraction portion 130. <i>Id.</i>, 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. <i>Id.</i>, ¶ 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 <i>Id.</i>, FIG. 2), is enclosed and extends into an interior space of the tongue retraction portion 130. <i>Id.</i>, ¶ 26-31. Indeed, Park specifically teaches that the tongue retraction portion 130 extends from the insertion port 110. <i>Id.</i>, ¶ 26. The suction ports 112 only extend partially into the main body 130, and the suction ports 112 do not extend to the through-holes 132 as a dedicated channel. <i>Id.</i>, ¶ 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

The '969 Patent	Exemplary Disclosures in the Prior Art
	open space that fluidly connects the holes 132 to the suction ports 112. <i>Id.</i>, ¶¶ 30-31, FIG. 2. If the mouth prop 100 did not include an interior open space formed in the tongue portion 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.” <i>Id.</i>, ¶ 10. 
19[c] a first wall that includes one or more perforations in communication with the interior space of the pocket, the first wall having a shape defined by one or more edges along one or more sides;	The main body 130 of Park has a first wall having a shape defined by an exterior edge, and the first wall has multiple perforations 132, at least one of which is an opening into the interior chamber of the main body 130. <i>Id.</i>, FIG. 2.

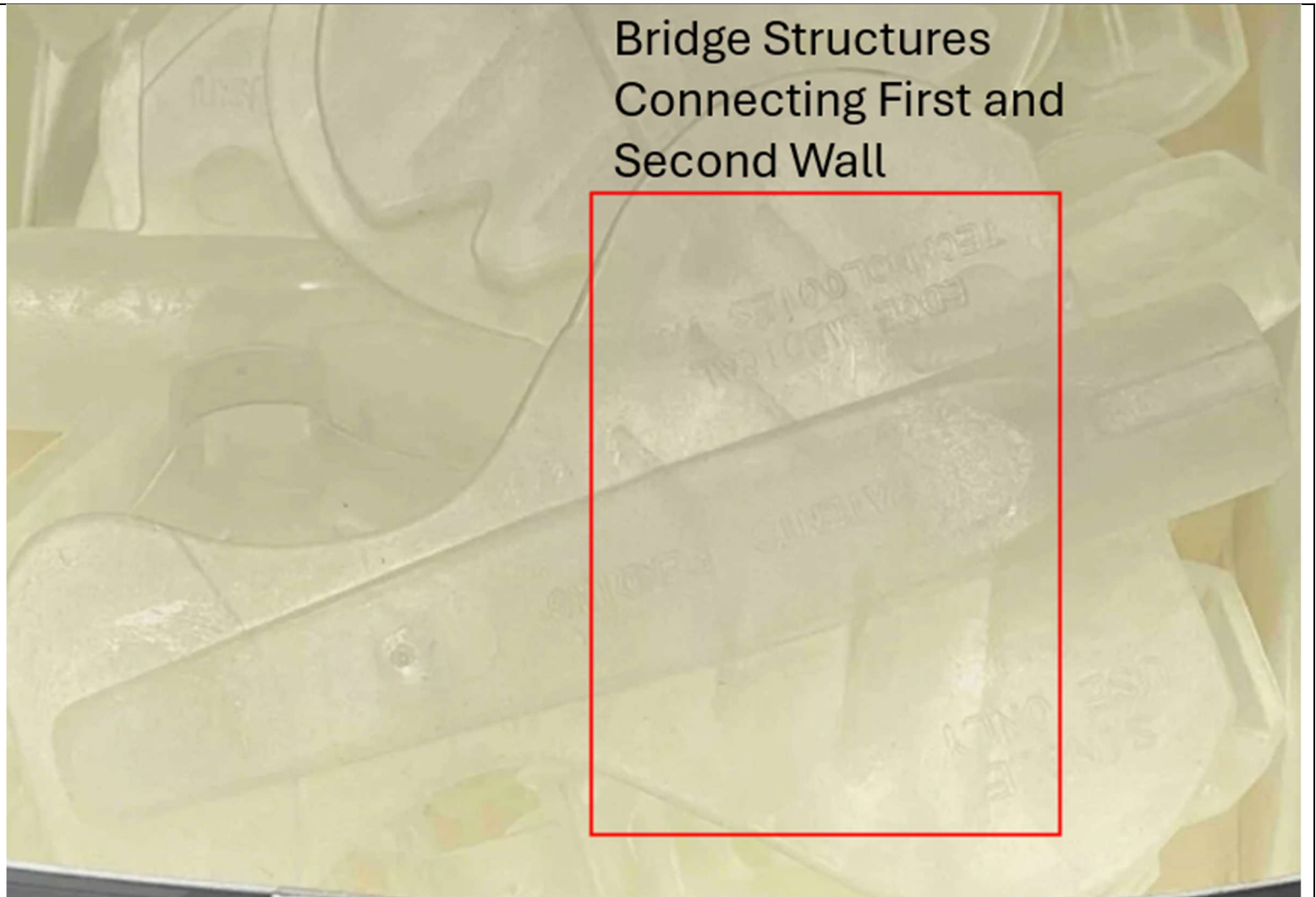
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19[d] a second wall having a shape that corresponds to the shape of the first wall, the shape of the second wall defined by one or more corresponding edges along one or more corresponding sides,	The main body 130 of Park has a second wall that is exactly the same shape as the first wall. <i>Id.</i>, FIG. 2-3. 

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19[e] wherein the second wall includes a bridge structure that includes a plurality of protrusions integral with and protruding from an interior surface of the second wall within the interior space of the pocket, wherein the protrusions of the bridge structure protrude from the interior surface of the second wall toward the first wall in a wave shape comprising one or more crests and one or more troughs, and	Park is silent regarding whether any structures are formed inside the interior chamber of the main body, which may be intentional as Park mentions that “common features,” such as anti-collapse structures, are “omitted.” <i>Id.</i>, ¶ 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. This collapsing would occur because Park teaches that the mouth prop comprises a flexible material, such as silicone. <i>Id.</i>, ¶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 mouth prop 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.

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	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 suggests that a spine is running from the socket 111 toward the cheek retractor end of the mouth prop. <i>Id.</i> FIG. 3.  However, this line is not shown in FIG. 6. 

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	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. <i>Id.</i>, ¶ 39. Thus, the weakest part of the mouth prop may actually be the exact center of the mouth prop (see annotated FIG. 6 below).  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. <i>Id.</i>, ¶ 32. To prevent collapse or restriction, a PHOSITA would have been motivated to add mechanical elements that prevent collapse under suction. Further, as discussed above, Black and the AirBug Mouthpiece disclose a bridge structure. <i>See e.g.</i> Exs. A-1 and A2, limitation 19(e).

Bridge Structures Connecting First and Second Wall



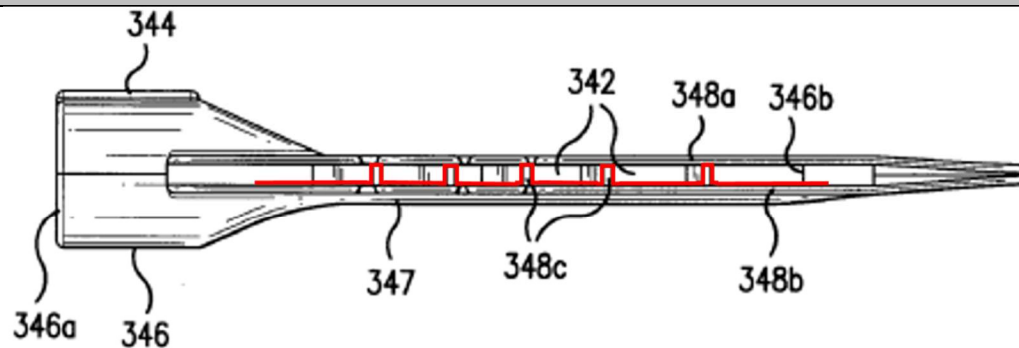
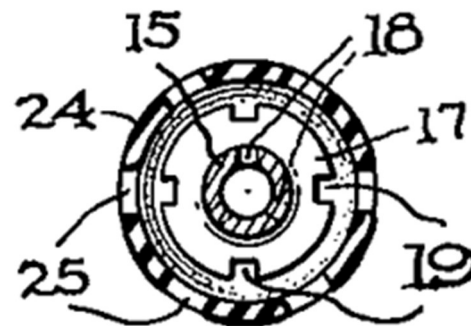


FIG. 23C

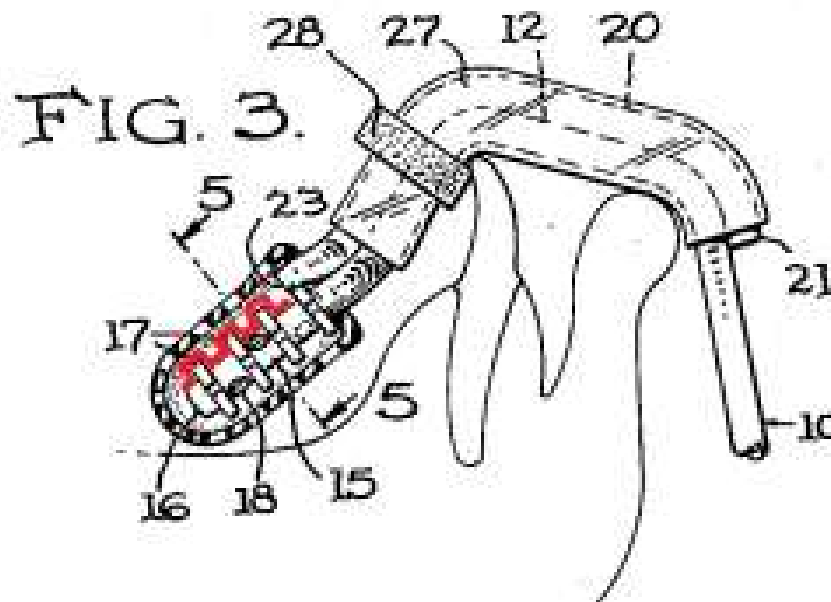
FIG. 5.



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. *Id.*, 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. *Id.* These rigid structures, spaced apart from each other, prevent the sleeve from collapsing under suction. *Id.* Baughan teaches that the projecting discs 17 are secured to the tube 15 but the discs 17 are not attached to the sleeve 24, as they merely contact the sleeve or the sleeve rests upon the discs. *Id.*, 2:19-25, 2:51-61; Thus, Baughan

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	teaches projecting discs connected to and protruding from one structure (the tube 15) but not attached to another structure (the sleeve 24). 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. Indeed, it was well known in the art how to make projections on a flat surface. Johnson further teaches that the projections are molded projections, which means the projections are integral with an interior surface on which they were formed. <i>Id.</i> Even so, making something integral is an obvious design choice. MPEP 2144.04(V)(B). Applying the simple teachings of one or more of Black, AirBug, Baughan, and Johnson 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. <i>Id.</i> 3:43-48. Moreover, Black taught this same concept but with an “open” mouthpiece lacking sidewalls. Park opted for sidewalls, but the concept of using perpendicularly projecting structures to prevent collapse of parallel walls under suction was demonstrated by Black and by Baughan. Black, 5:45-59; Baughan, 3:43-48. Thus, a PHOSITA would have expected success in using spaced-apart projections to prevent walls from collapsing under suction. 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. Baughan, 3:36-48; Black, Abstract. Modifying Park in view of The combination of Baughan and/or 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. Baughan, FIG. 3 Park in view of one or more of Black, AirBug, Baughan and Johnson would predictably result in multiple projections formed at the weakest point(s) of Park 111. <i>See</i> annotated Park, FIG. 3 below.

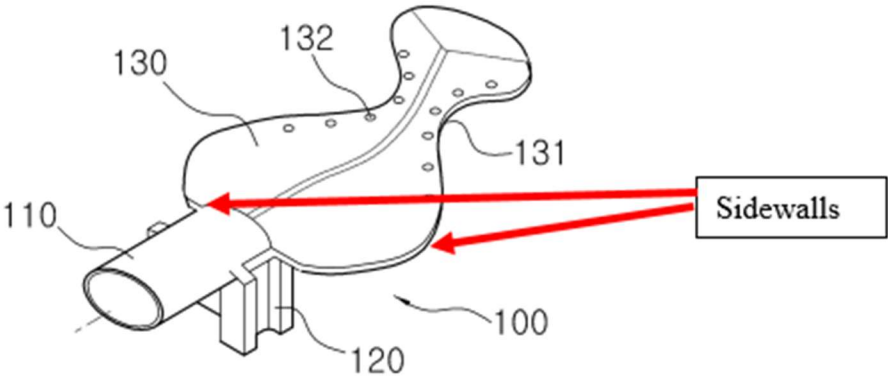
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	A PHOSITA would know that the projections could be formed at any angle, but angling the projections/troughs toward the holes would create an efficient convergent flow. Black, 8:21-39. To the extent Solmetex argues that the discs of Baughan are not “integral,” it would have been obvious to integrally form projections in view of Park or Johnson. Park teaches a silicone material that comprises the mouth prop 100. Park, ¶ 32. Adding integral projections would have been obvious in view of common knowledge in injection molding. Alternatively, it would have been obvious to add projections integrally in view of Johnson. Johnson teaches a plurality of integrally formed projections formed on an inner surface of a dental apparatus. Johnson, 4:16-23; MPEP 2144.04(V)(B). Thus, Park in view of Baughan and/or Johnson teaches limitation 1(g). Baughan teaches that the spaced-apart discs result in a square wave shape having crests and troughs. Baughan, FIG. 3 (annotated below).

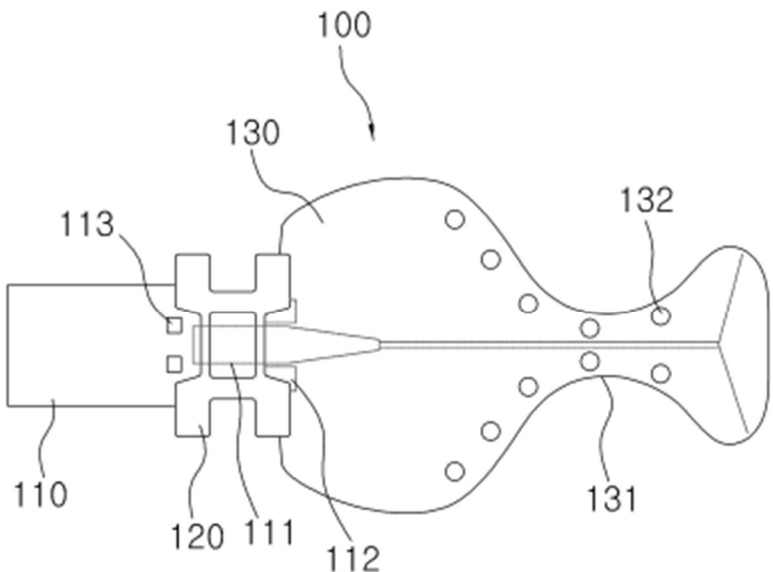


In fact, each individual disc 17 is formed in a wave shape with notches 19 formed in each disc so that saliva “will always be able to pass through.” Baughan, 3:40-43. In fact, the notches 19 formed in each disc are described in the same way as the bridge structure of the '969 Patent. Baughan, 3:40-43.. As shown below, the notches 19 in the disc also form a square wave shape. Baughan, FIG. 5 (annotated).



Furthermore, as shown in FIGs. 1-3 of Park, the span between two walls of Park is less than the width of the first wall. Indeed, the mouth prop 100 is thinner than it is wide. Park, FIG. 2.

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19[f] a connecting wall that connects the one or more edges of the first wall to one or more corresponding edges of the second wall across a span between the first wall and the second wall;	The main body 130 of Park has a sidewall connecting the anterior wall and the posterior wall. Park, FIG. 2. 
19[g] a suction connector portion connected to a first end of the main body portion, the suction connector configured to connect a vacuum source to the interior space of the pocket; and	Park teaches a suction connector 110 that suctions foreign materials and connects to a vacuum source. Park ¶¶ 26-28. The suction connector 110 suctions through the ports 112 and through the holes 132 via the inner chamber. <i>Id.</i>; See Section IX.B.1. As shown in FIG. 3 of Park, the suction connector is connected to a first end of tongue retraction portion 130.
19[h] a cheek retractor connected to a second end of the main body portion, wherein the second end is opposite the first end of the main body portion.	Park teaches a concave area 131 (transition section) at the first end of the main body 130 that flexibly connects to a cheek retractor. Park, ¶ 31. Park illustrates that the concave area 132 includes holes 132. Park, FIG. 3. As shown in FIG. 3 of Park, the cheek retractor is connected to a second end of tongue retraction portion 130, opposite the insertion port 110.

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	 Thus, Park in view of one or more of Black, AirBug, Baughan, and/or Johnson teaches all of the limitations of claim 19.