

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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LIFE VAC, LLC,  
Petitioner,

v.

DCSTAR INC.,  
Patent Owner.

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PGR2023-00032  
Patent 11,478,575 B1

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Before JOSIAH C. COCKS, MICHAEL L. WOODS, and  
MATTHEW S. MEYERS, *Administrative Patent Judges*.

WOODS, *Administrative Patent Judge*.

DECISION  
Denying Institution of Post-Grant Review  
35 U.S.C. § 324

## I. INTRODUCTION

Life Vac, LLC, (“Petitioner”) filed a Petition (Paper 2, “Pet.”) for post-grant review of claims 1–17 (the “Challenged Claims”) of U.S. Patent No. 11,478,575 B1 (Ex. 1001, “the ’575 patent”). Pet. 1. DCSTAR Inc. (“Patent Owner”) filed a Preliminary Response (Paper 10, “Prelim. Resp.”).

Under 35 U.S.C. § 324 and 37 C.F.R. § 42.4(a), we have authority to institute an post-grant review if “the information presented in the petition . . . , if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” 35 U.S.C. § 324(a).

Applying those standards, and upon considering the Petition, the Preliminary Response, and the evidence of record, we determine that the Petition fails to demonstrate that it is more likely than not that at least 1 of the Challenged Claims is unpatentable. Accordingly, we deny institution of post-grant review.

## II. BACKGROUND

### *A. Real Parties-in-Interest*

Petitioner identifies Life Vac, LLC, as the real party-in-interest. Pet. 2. Patent Owner identifies DCSTAR Inc. as the real party-in-interest. Paper 6, 2.

### *B. Related Matters*

Patent Owner identifies the following court proceedings relating to the ’575 patent:

- *DCSTAR INC. v. The Partnerships and Unincorporated Associations Identified on Schedule A*, Case No. 1:23-cv-02355 (N.D. Ill.);

- *DCSTAR INC. v. The Partnerships and Unincorporated Associations Identified on Schedule A*, Case No. 1:23-cv-02522 (N.D. Ill.); and
- *DCSTAR INC. v. The Partnerships and Unincorporated Associations Identified on Schedule A*, Case No. 1:23-cv-03351 (N.D. Ill.).

Paper 6, 2. Petitioner does not identify any related matters. Pet. 2.

### *C. Post-Grant Review Eligibility*

As a threshold issue, we must determine whether the '575 patent is eligible for post-grant review. There are two requirements that must be met for post-grant review to be available.

First, post-grant review is only available if the petition is filed within nine months of the issuance of the challenged patent. 35 U.S.C. § 321(c). Petitioner certifies that the petition was filed within nine months of the '575 patent's October 25, 2022, issue date. Pet. 3; Ex. 1001, code (45). The Petition was given a filing date of June 16, 2023, (Paper 9, 1), which was within nine months of the October 25, 2022, filing date.

Second, post-grant review is available only for patents that issue from applications that at one point contained at least one claim with an effective filing date of March 16, 2013, or later. *See* Pub. L. No. 112-29, §§ 3(n)(1), 6(f)(2)(A). Here, the earliest priority date recited for the '575 patent is the application's filing date of Aug. 3, 2021, (Ex. 1001, code (22)), which is later than March 16, 2013.

Accordingly, the '575 patent is eligible for post-grant review.

*D. Overview of The '575 Patent*

The '575 patent is titled, "Removal Device for Removing Obstruction in Respiratory Tract and Connector." Ex. 1001, code (54). The disclosure of the '575 patent relates to "medical instruments, and in particular to a removal device for removing an obstruction in a respiratory tract." *Id.* at 1:7–9. "The technical problem to be solved by the disclosure is to provide a removal device for removing an obstruction in a respiratory tract which is simple in structure and operation and practically effective." *Id.* at 1:33–36. To illustrate an embodiment of the '575 patent, we reproduce its Figure 1, below:

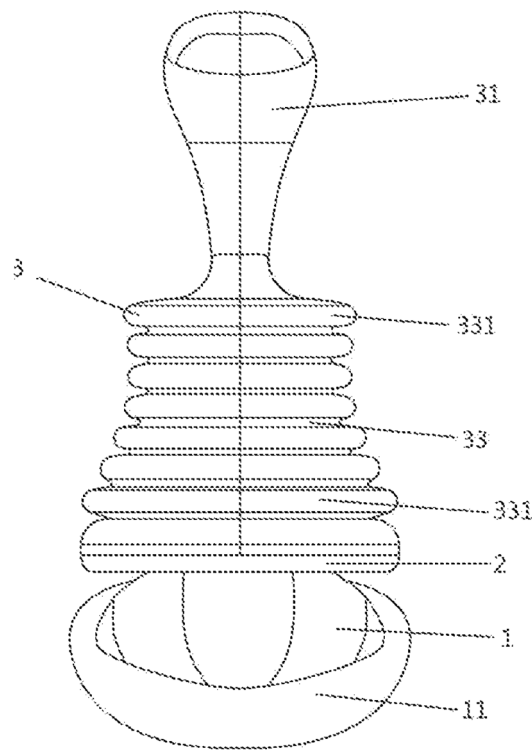


*Fig. 1*

Figure 1, reproduced above, is “a three-dimensional combined schematic diagram of a removal device provided in” one of the ’575 patent’s embodiments. *Id.* at 5:25–26. In particular, Figure 1 depicts face mask 1, connector 2, and gasbag 3 sequentially connected. *Id.* at 6:5–7.

We further reproduce Figure 3 of the ’575 patent, below:

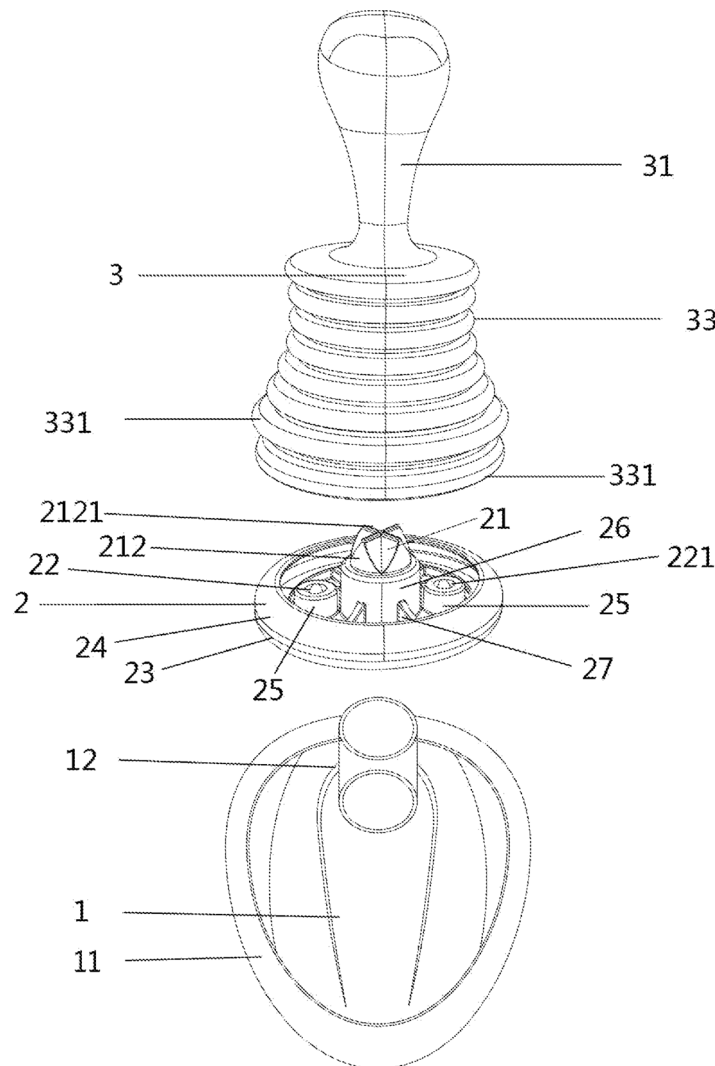


*Fig. 3*

Figure 3, reproduced above, “is a three-dimensional exploded schematic diagram . . . of the removal device provided.” *Id.* at 5:29–31. Specifically, and as shown in Figure 3, “connector 2 is made from an elastic material, and

is provided with a bottom plate 23.” *Id.* at 6:18–20 (emphasis omitted).<sup>1</sup> “[A]n upper side of bottom plate 23 is provided with an annular first peripheral side wall 24, an upper end of the first peripheral side wall 24 shrinks inward to form a stop edge.” *Id.* at 6:20–23. “[T]he collapsible gasbag 3 is provided with a second peripheral side wall 33 made from an elastic material, and the second peripheral side wall 33 is provided with a plurality of layers of outwardly convex folds.” *Id.* at 6:23–26. In operation, and in

the process of compressing the collapsible gasbag 3, gas flows from the inside of the collapsible gasbag 3 to the outside of the collapsible gasbag 3 at the second check valve 22, and the first check valve 21 is tightly closed, that is, gas in the gas storage cavity may be discharged to the outside through the second check valve 22, but may not enter the respiratory tract of the patient through the first check valve 21.

*Id.* at 8:6–13.

### *E. Challenged Claims*

Petitioner challenges 1–17 of the ’575 patent. Pet. 1. Claims 1, 3, 9, and 13 are independent. Ex. 1001, 9:58–13:23. We reproduce independent claims 1, 9, and 13, below, with emphasis added to particular limitations addressed in this Decision:

1. A removal device for removing an obstruction in a respiratory tract, the removal device comprising a collapsible gasbag, a connector and a face mask which are sequentially connected,

wherein the collapsible gasbag is internally provided with a gas storage cavity, a top of the collapsible gasbag is sealed,

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<sup>1</sup> Here and throughout this Decision, we omit bold emphasis to all reference numerals.

and a bottom of the collapsible gasbag is provided with an opening in communication with the gas storage cavity;

an upper side of the connector is hermetically connected to the opening, and the connector is provided with a first check valve and a second check valve, a first gas outlet end of the first check valve is in communication with the gas storage cavity, a second gas inlet end of the second check valve is in communication with the gas storage cavity, and a second gas outlet end of the second check valve is in communication with the outside; and

an upper side of the face mask is hermetically connected to a first gas inlet end of the first check valve, and a lower side of the face mask is provided with a flexible annular pad configured to attach to a face,

*wherein the connector comprises a bottom plate and the first check valve and the second check valve are arranged on the bottom plate, wherein the first check valve and the second check valve allow gas flow to pass in opposite directions.*

...

9. A removal device for removing an obstruction in a respiratory tract, the removal device comprising a collapsible gasbag, a connector and a face mask which are sequentially connected,

wherein the collapsible gasbag is internally provided with a gas storage cavity, the top of the collapsible gasbag is sealed, and the bottom of the collapsible gasbag is provided with an opening in communication with the gas storage cavity;

an upper side of the connector is hermetically connected to the opening, and the *connector is provided with a first check valve and a second check valve*; a first gas outlet end of the first check valve is in communication with the gas storage cavity, a second gas inlet end of the second check valve is in communication with the gas storage cavity, and a second gas outlet end of the second check valve is in communication with the outside; and

an upper side of the face mask is hermetically connected to a first gas inlet end of the first check valve, and a lower side of the face mask is provided with a flexible annular pad configured to attach to a face,

*wherein the connector is provided with a bottom plate, the bottom plate being provided with a peripheral cylinder which is vertically through; the second check valve is a duckbill valve, the second check valve comprises a duckbill portion and a second base portion which are connected to each other, the second gas inlet end is a second vent hole provided in the middle of the second base portion, and the second gas outlet end is a second slit provided in the duckbill portion; an outer side of the second base portion is hermetically connected to an inner side of the peripheral cylinder, and the second vent hole of the second base portion is in communication with the gas storage cavity; the duckbill portion extends into the peripheral cylinder, and a lower end of the peripheral cylinder is in communication with the outside; when gas flows into the duckbill portion through the second vent hole, pressure in the duckbill portion gradually increases such that the duckbill portion is deformed by expansion, so that the second slit is opened, thereby allowing gas in the gas storage cavity to be discharged to the outside; and when gas flowing into the duckbill portion through the second vent hole, pressure in the deformation portion is reduced and even reduced to zero, and the duckbill portion shrinks under its own elasticity such that the second slit is closed, thereby preventing outside gas from flowing into the gas storage cavity through the second vent hole.*

...

13. A connector for a removal device, *the connector comprising a bottom plate, and a first check valve and a second check valve which are arranged on the bottom plate*, wherein the first check valve and the second check valve allow gas flow to pass in opposite directions; and the connector is an integrally formed member made from an elastic material.

Ex. 1001, 9:58–12:41 (emphases added to limitations addressed in this Decision).

*F. Asserted Grounds of Unpatentability*

Petitioner asserts that the Challenged Claims are unpatentable based on the following grounds (Pet. 18):

| Claims Challenged | 35 U.S.C. § <sup>2</sup> | References                                                     |
|-------------------|--------------------------|----------------------------------------------------------------|
| 1–17              | 103                      | Lih <sup>3</sup> , Tarrats, <sup>4</sup> da Costa <sup>5</sup> |
| 1–17              | 102                      | Lih                                                            |

Petitioner also relies on the Declaration of Mr. Carl Stamp (Ex. 1003). See Pet. 1 (“This Petition, supported by the accompanying Declaration of Carl Stamp.”)

### III. ANALYSIS

*A. Level of Ordinary Skill in the Art*

Petitioner submits that a person of ordinary skill in the art at the time of the invention (“POSITA” or “POSA”)

would have: (1) *a mechanical or biomedical engineer with at least 5 years of experience in designing or developing medical devices in general*, or at least 2 years of experience in designing devices associated with maintaining or clearing the airway of humans, who would, where necessary or desired, work or consult with a medical clinician such as a respiratory therapist, emergency medical technician (EMT) or physician, to develop

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<sup>2</sup> The AIA version of 35 U.S.C. applies to this proceeding. See Ex. 1001, code (22) (indicating the earliest possible priority date as August 3, 2021).

<sup>3</sup> US Pat. No. 10,052,115 B2, issued Aug. 21, 2018 (Ex. 1004, “Lih”).

<sup>4</sup> US Pat. No. 4,971,053, issued Nov. 20, 1990 (Ex. 1006, “Tarrats”).

<sup>5</sup> US Pat. No. 3,939,830, issued Feb. 24, 1976 (Ex. 1005, “da Costa”).

such medical devices, or (2) a medical clinician such as a respiratory therapist, EMT or physician with experience designing or developing medical devices in the respiratory field, who would, where necessary or desired, work or consult with an engineer, to develop such medical devices.

Pet. 18–19 (citing Ex. 1003, 10) (emphasis added).

Patent Owner, on the other hand, submits that a POSITA would be (1) a mechanical or biomedical engineer having at least 2 years of experience in designing devices associated with maintaining or clearing the airway of humans, who would, where necessary or desired, work or consult with a medical clinician such as a respiratory therapist, emergency medical technician (EMT) or physician, to develop such medical devices, or (2) a medical clinician such as a respiratory therapist, EMT or physician with experience maintaining or clearing the airway of humans, who would, where necessary or desired, work or consult with an engineer, to develop such medical devices.

Prelim. Resp. 6–7.

Petitioner’s and Patent Owner’s proposed definitions are similar, with a primary difference being that Petitioner’s definition more broadly includes people having experience with “medical devices in general.” *Compare* Pet. 18–19, *with* Prelim. Resp. 6–7. Patent Owner contends that Petitioner’s standard is “unreasonably broad,” arguing that Patent Owner’s definition for a skilled artisan “more reasonably focuses on the nature of the subject invention.” Prelim. Resp. 7.

For purposes of this Decision, we adopt Petitioner’s assessment of the level of ordinary skill in the art. We are not persuaded that a skilled artisan would have necessarily required experience with respiratory devices, as Patent Owner proposes. *See* Prelim. Resp. 6–7. We find Petitioner’s definition, which would include “a mechanical or biomedical engineer with

at least 5 years of experience in designing or developing medical devices in general,” is consistent with the ’575 patent and the asserted prior art. Pet. 18–19; *see Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

### *B. Claim Construction*

In this post-grant review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). In applying this standard, we generally give claim terms their ordinary and customary meaning as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Petitioner expressly construes “bottom plate” and “check valve.” *See* Pet. 20–21.

Patent Owner proposes a construction for “bottom plate,” “check valve,” and “connector.” Prelim Resp. 8–11.

For purposes of this Decision, we need not and do not formally construe any claim term. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

### *C. Principles of Law*

Petitioner’s challenge is based on anticipation and obviousness. Pet. 18.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). To establish anticipation, “all of the elements and limitations of the claim must be shown in a single prior reference, arranged as in the claim.” *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001).

A patent claim is unpatentable as obvious if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and, when presented, (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We analyze the asserted grounds of unpatentability in accordance with these principles.

*D. Obvious over Lih, Tarrats, and da Costa*

Petitioner submits that claims 1–17 are obvious over Lih, Tarrats, and da Costa. Pet. 18.

1. *Lih (Ex. 1004)*

Lih is a U.S. Patent titled “Choking Intervention Device and Method of Use Thereof.” Ex. 1004, code (54). Lih discloses a “choking intervention device for clearing an object obstructing a breathing passage of a choking victim includ[ing] a bellows assembly and a removable facemask configured to enclose a person’s mouth and nose.” *Id.* at code (57). We reproduce Figure 3 of Lih, below:

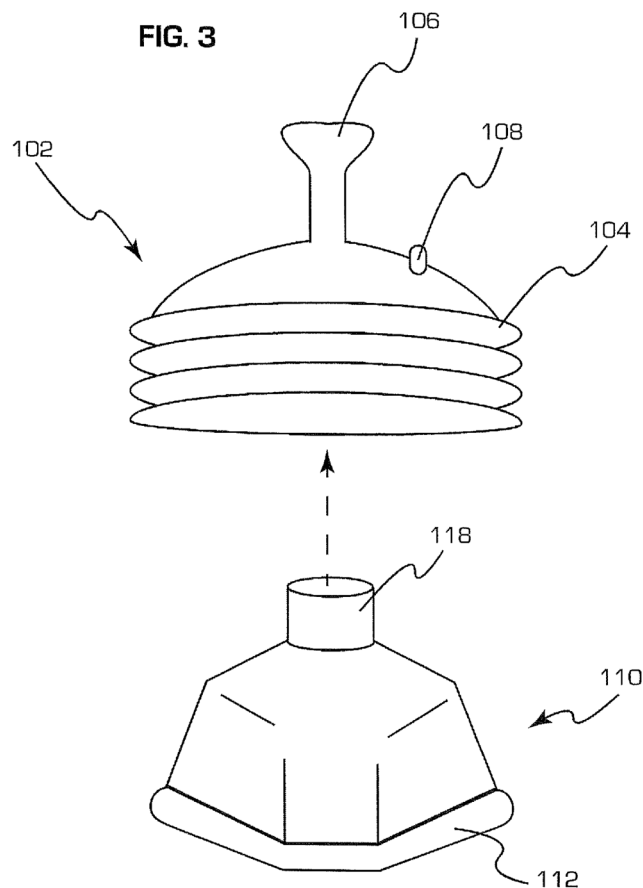


Figure 3, reproduced above, “illustrates an exploded view of [an] exemplary choking intervention device.” Ex. 1004, 3:36–37. In particular, Figure 3 depicts bellows assembly 102 configured to sealingly couple to facemask 110. *Id.* at 3:64–66 (referencing related Fig. 1).<sup>6</sup> Bellows assembly 102

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<sup>6</sup> Bold emphases to reference numerals are omitted in this Decision.

may have a plunger-shape that includes bellows 104 and handle 106 disposed at the top and opposite base 114 (numbered in Fig. 2). *Id.* at 3:66–4:2. Bellows assembly 102 may include relief valve 108 configured to allow air to escape when bellows 104 is compressed. *See id.* at 4:3–5. Relief valve 108 is unidirectional as it allows air to escape during compression, but prevents air from escaping during suction. *Id.* at 4:10–12.

2. *Tarrats (Ex. 1006)*

Tarrats is a U.S. Patent titled, “Suction Mask to Relieve Choking.” Ex. 1006, code (54). Tarrats discloses an “apparatus to remove an obstruction from the trachea of a choking victim [comprising] a hollow cylinder having a forward end.” *Id.* at code (57). We reproduce Figure 1 of Tarrats, below:

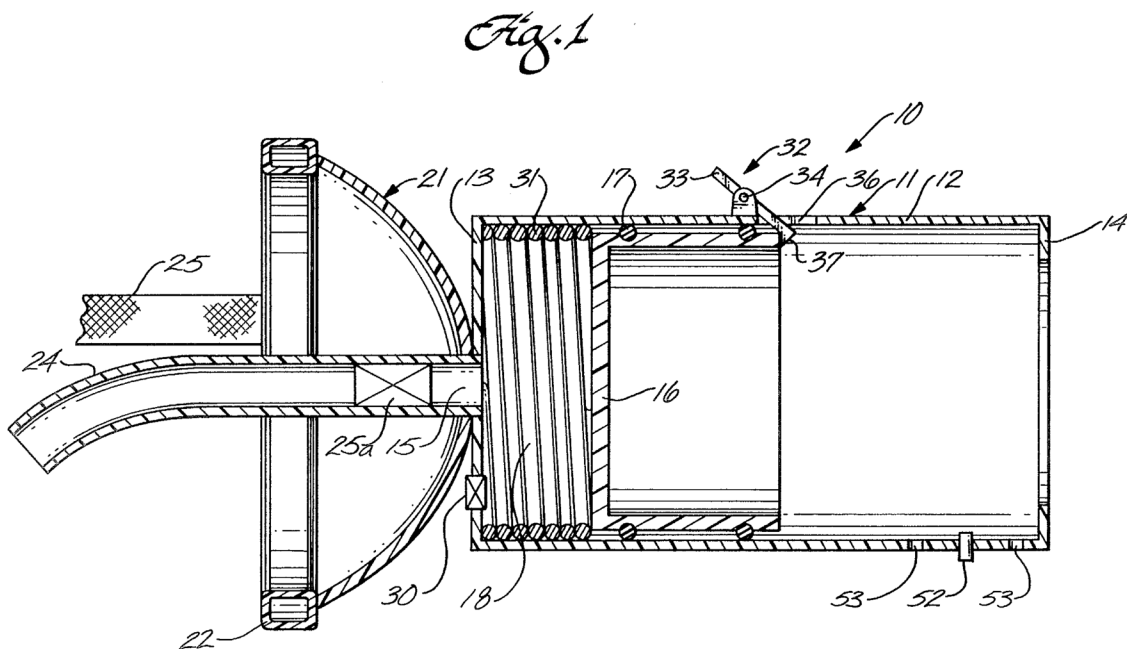


Figure 1, reproduced above, “is a cross-sectional view of a preferred suction mask in accordance with [Tarrats’s] present invention.” *Id.* at 2:21–22.

Specifically, Figure 1 depicts suction mask 10 having a hollow cylinder or

housing 11, which has cylindrical side wall 12, generally flat forward end wall 13 having aperture 15, and an annular rear end wall 14. *Id.* at 2:29–32. Piston 16 is mounted within cylinder 11 and with O-rings 17 within grooves of cylinder 11. *Id.* at 2:33–39. O-rings 17 form an airtight seal between piston 16 and inner surface of cylinder sidewall 12. *Id.* at 2:39–41.

In use, the piston 16 is releasably latched in its forward position. The mask 21 is then placed over the mouth and nose of a choking victim, the airway 24 extending into the choking victim's mouth. While maintaining the mask 21 against the choking victim's face, the latch 32 is depressed to its released position allowing the piston 16 to move rearwardly, expanding the size of the chamber 18. As the chamber expands 18, air is drawn into the chamber 18 through the airway 24. This reduces the pressure within the mouth cavity of the choking victim drawing any obstruction in the victim's trachea upwardly out of the trachea.

Ex. at 3:47–58.

3. *da Costa (Ex. 1005)*

da Costa is a U.S. Patent titled, “Manually Operable Dechoking and Resuscitating Device.” Ex. 1005, code (54). da Costa discloses a “manually operable device susceptible of use as a dechoker for removing an obstruction from the throat of a person, generating artificial respiration, or alleviating heart failure by applying pressure from the lungs to the heart to compress the latter and cause some blood circulation.” *Id.* at code (57). We reproduce Figure 2 of da Costa, below:

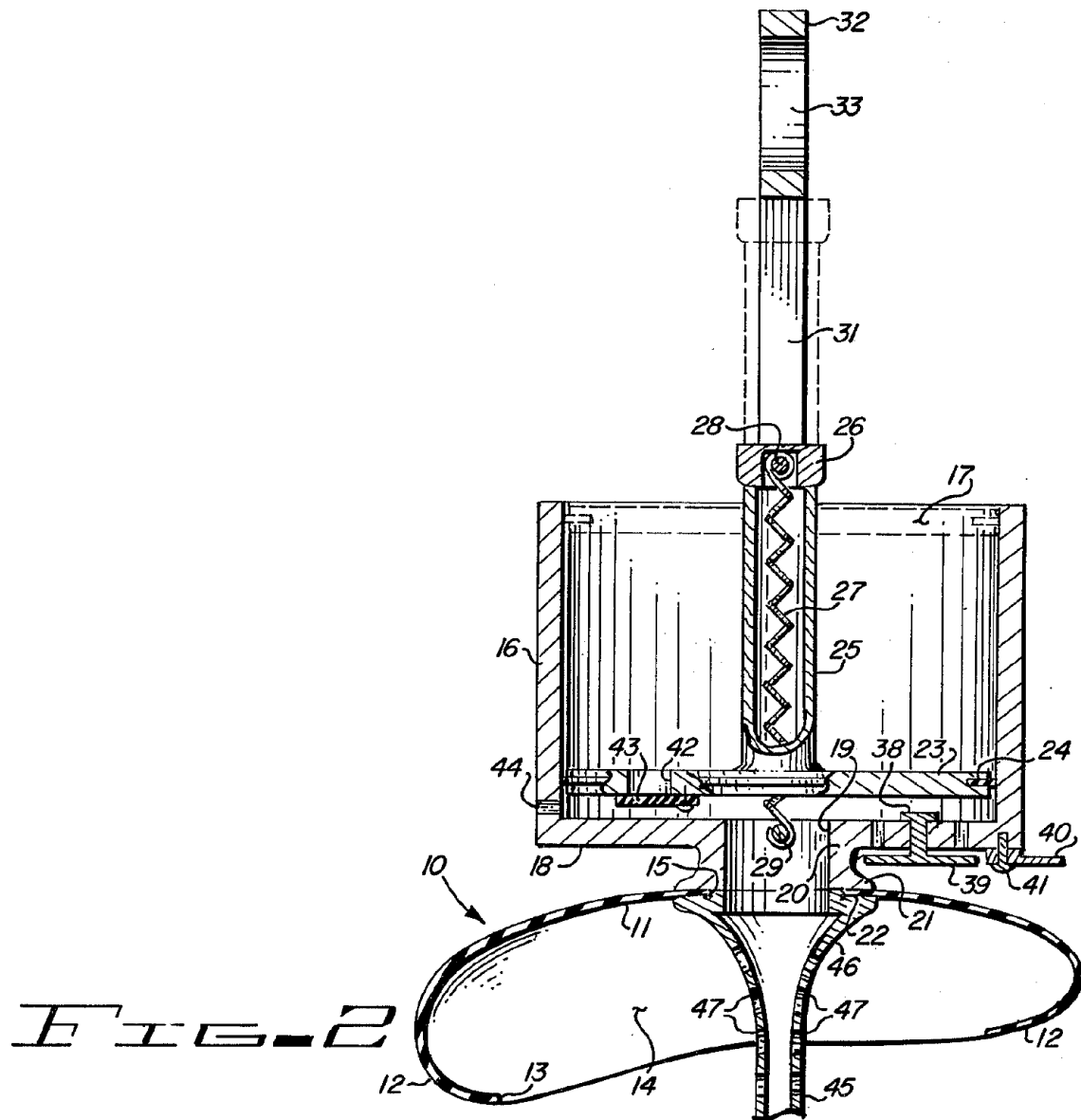


Figure 2, reproduced above, is a vertical section of a face mask and a piston pump. *See id.* at 3:52–55. In particular, Figure 2 depicts face mask 10 with main body portion 11. *See id.* at 4:7–9. Face mask 10 is dimensioned to fit over the nose-chin area of the face of a person leaving cavity 14 between body portion 11 and the face to which it is applied. *See id.* at 4:12–14. Cylinder 16 has open end 17 and its other end is closed by an end wall 18, which is formed with central opening 19 and aligned with opening 15 in

body portion 11 of the mask. *Id.* at 4:18–21. Piston 23 in the form of a metallic plate or disc is fitted for reciprocation in cylinder 16. *Id.* at 4:29–30. At the upper face of piston 23 at the center thereof is tubular rod 25. *Id.* at 4:36–37. Secured to the upper end of rod 25 is handle 26, which is normal to rod 25. *Id.* at 4:37–38.

If a person has an obstruction in his throat that requires immediate removal he is positioned with his head and trunk bent forwardly, preferably at an angle of 45 whereupon an operator first swings detent 40 out of engagement with valve head 39. With one hand he grasps handle member 26 and crossbar 32 and with the other hand places mask 10 over the nose and mouth of the person 16 then tightens his grip on member 26 and crossbar 32 to generate an outstroke of piston 23. This creates a vacuum condition in cylinder 16 which closes passages 35 and the vacuum becomes effective in the throat of the person. This causes air pressure from the lungs and/or partial regurgitation of the stomach contents to eject the obstruction or at least move it partially outwardly in the throat.

*Id.* at 5:45–59.

da Costa also teaches an *alternative embodiment*, shown in Figures 5–7, which “illustrate the device as modified for alleviation of a heart failure by starting blood circulation.” *Id.* at 6:7–9. We reproduce Figure 6 of da Costa, below:

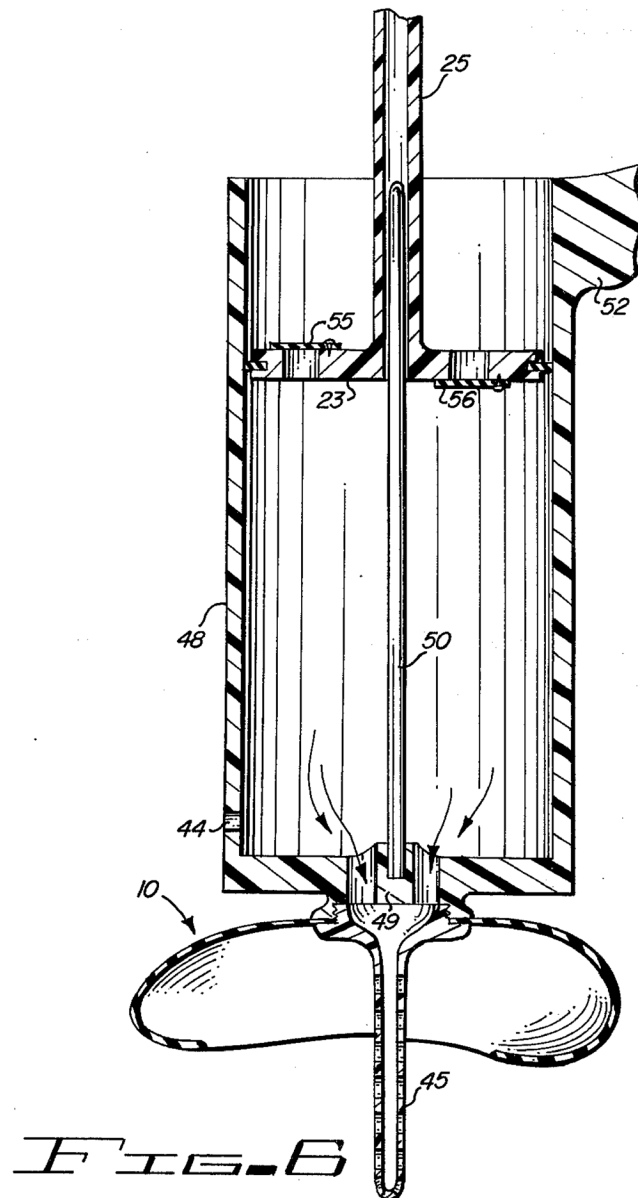


Figure 6, reproduced above, depicts a *modified embodiment* “for alleviation of a heart failure by starting blood circulation.” Ex. 1005, 6:6–9. Piston 23 is provided with pressure relief valves 55, 56. *Id.* at 6:30–31.

On the instroke or piston 23 lungs 53 are filled to the limit of their capacity by air under pressure. Thus the lungs are expanded against heart 54 to compress the latter. On the outstroke of piston 23 the lungs contract to relieve the pressure on the heart to permit it to expand to its normal condition. This alternate compression and expansion of heart 54 causes the

latter to perform its pumping function to initiate blood circulation. Under many conditions the circulation will be sufficient to sustain life.

*Id.* at 6:43–52.

#### 4. *Petitioner’s Challenge*

Petitioner submits that claims 1–17 are unpatentable over Lih, Tarrats, and da Costa. Pet. 22.

Petitioner “[a]dopt[s] the Examiner[’]s arguments,” acknowledging that “Lih and Tarrats fail to disclose a bottom plate and the first check valve and the second check valve are arranged on the bottom plate.” *Id.* at 28 (citing Ex. 1002, 177). Petitioner submits that, “[w]ith respect to the Challenged Claims, Lih teaches a removal device for removing an obstruction in a respiratory tract comprising a sequentially connected collapsible gasbag, a connector [118], a face mask, and a check valve [108].” *Id.* at 29 (citing Ex. 1002, 176); *see also id.* at 25 (identifying 118 as “connector” and 108 as “check valve”). Petitioner further submits that “Tarrats teaches an apparatus to remove an obstruction with a connector [15] provided with a first check valve [25a] a first gas outlet end of the first check valve that prevents air into the victim’s mouth with the valve inlet on the face mask side and the outlet on the bellow side in communication with the gas storage cavity location of the check valve.” *Id.* at 29 (citing Ex. 1002, 176–177); *see also id.* at 26 (identifying 15 as the “connector” and 25a as the “first check valve”).

In referencing da Costa, Petitioner explains that “da Costa teaches two check valves (for safety and pressure) [55, 56] that allow air to flow in

opposite directions.” *Id.* at 29 (citing Ex. 1005, 6:31–32). Petitioner further explains,

[t]hese two check valves are located on a plate at the bottom of a piston that connects to an air chamber taught by da Costa. Additionally, da Costa is in the same field of art, a reference that would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention (so to avoid pushing the obstruction farther into the user’s airway while in use and to initiate blood circulation). . . . Therefore, Claims 1, 7, and 10–12 should be cancelled as obvious by Lih in view of Tarrats in view of da Costa.

*Id.* (citing Ex. 1005, 6:31–32).

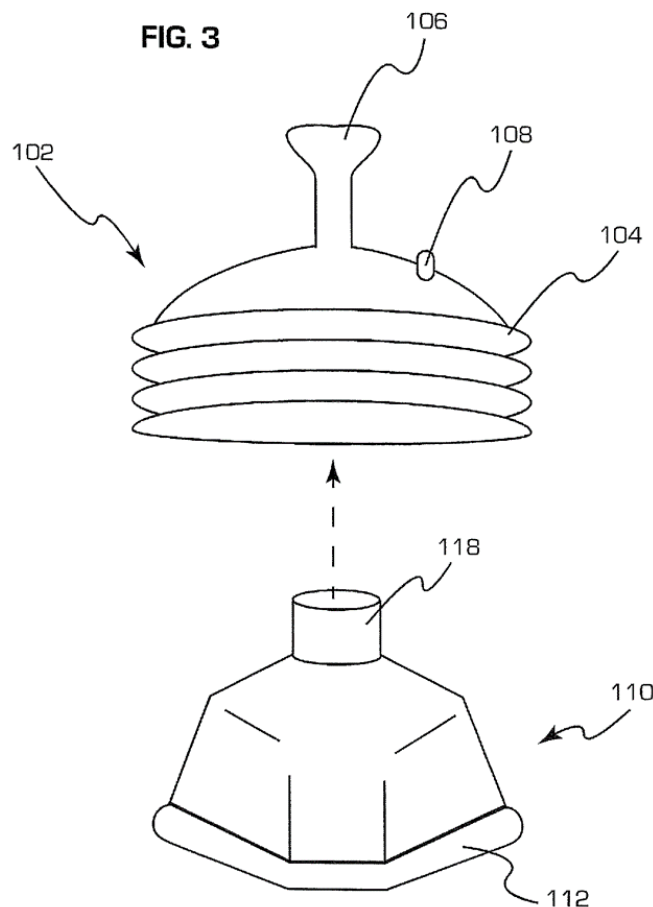
In response, Patent Owner argues that the cited references and the proposed combination fail to satisfy the recited “connector” with first and second check valves “arranged on the bottom plate.” *See* Prelim. Resp. 30. Patent Owner further argues that Petitioner failed to “explain how and why a POSA would modify the Lih cylindrical connector 118 in at least two respects: (1) modifying the shape of the alleged connector from a cylinder to ‘a bottom plate,’ and (2) situating both a first check valve and a second check valve onto the bottom plate.” *Id.* at 34 (emphasis omitted). Patent Owner also contends that including da Costa’s check valves 55, 56 into Lih would render Lih unsuitable for its intended purpose. *See id.* at 37–38.

Patent Owner’s arguments are persuasive.

The Petition fails to identify with sufficient particularity how Lih, Tarrats, and da Costa are being combined for satisfying the claim limitations. *See* 35 U.S.C. § 322(a)(3) (a post-grant review petition must identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”). Further, the Petition fails to cite to the specific portions of Lih, Tarrats, and da Costa and the relevance of these portions in

support of its challenge. *See* 37 C.F.R. § 42.204(b)(5) (a post-grant review petition must identify “the relevance of the evidence to the challenge raised, including identifying specific portions of the evidence that support the challenge”).

For example, claim 1 recites, “wherein the connector comprises a bottom plate and the first check valve and the second check valve are arranged on the bottom plate.” Ex. 1001, 10:14–16. Petitioner submits that Lih discloses a “connector,” citing reference numeral 118 from Fig. 3. Pet. 25 (referencing an Examiner’s Office Action dated March 2, 2022); *see also id.* at 29, 35 (“Lih teaches . . . a connector (118, fig. 3)”). We reproduce Figure 3 of Lih, below:



As shown above, and as described by Lih, “facemask 110 has a connector 118 . . . at an end opposite to the end seal 112, wherein the connector 118 is configured to allow the facemask 110 to removably connect to the bellows assembly 102.” Ex. 1004, 4:26–29. As can be seen in Figure 3, connector 118 is cylindrical in shape, and does not have a “bottom plate,” let alone first and second check valves arranged thereon.

Petitioner further relies on Tarrats for teaching “a connector [15] provided with a first check valve [25a],” referencing Tarrats’s Figure 1. *See* Pet. 26 (citing Ex. 1002, 142), 29. We reproduce Tarrats’s Figure 1, below:

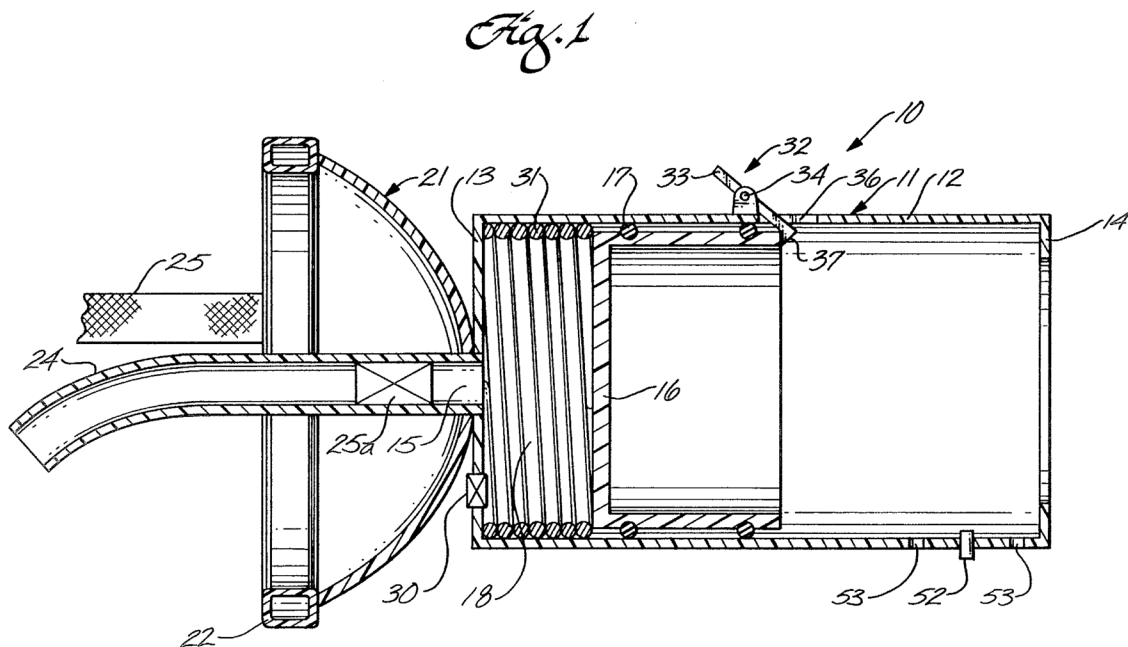


Figure 1, reproduced above, depicts one-way check valve 25a in aperture 15 (*see* Ex. 1006, 2:32, 3:36), yet it does not depict aperture 15, which Petitioner submits is the “connector,” as having a “bottom plate,” let alone a bottom plate with two check valves.

Indeed, these findings were confirmed by the Examiner. *See* Ex. 1002, 142 (“Lih and Tarrats fail to disclose a bottom plate and the first check valve and the second check valve are arranged on the bottom plate.”).

To address these shortcomings, Petitioner relies on da Costa, citing da Costa's Figure 6 and relief valves 55 and 56. Pet. 29 (citing Ex. 1005, 6:31–32). We reproduce da Costa's Figure 6, below:

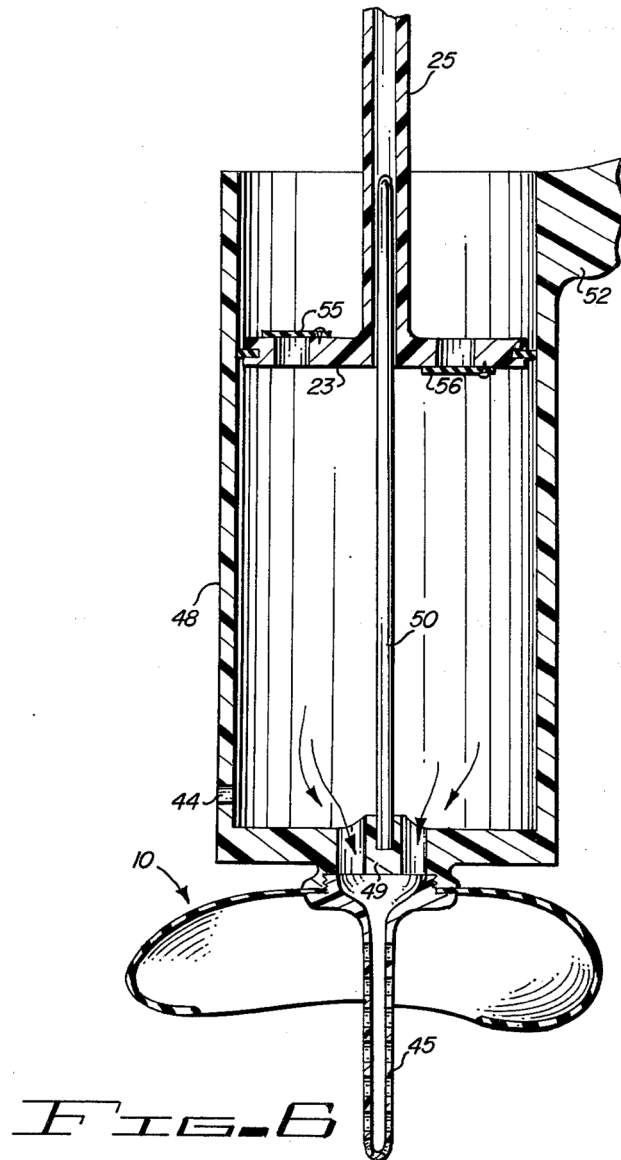


Figure 6, reproduced above, does not depict an embodiment for removing an obstruction from a person's throat, but instead depicts a *modified embodiment* "for alleviation of a heart failure by starting blood circulation." Ex. 1005, 6:6–9. Piston 23 is provided with pressure relief valves 55, 56. *Id.* at 6:30–31. da Costa does not provide a detailed explanation of pressure

relief valves 55, 56, but we understand that by their definition, and based on their location and operation within da Costa's heart resuscitation device, which is relatively simple to understand, pressure relief valve 55 likely opens when the pressure in da Costa's cylinder exceeds a certain pressure, to prevent over-pressurizing the patient's lungs, and pressure relief valve 56 likely opens to allow air to enter into da Costa's cylinder to prevent under-pressurization, or a low-vacuum condition, within the patient's lungs. *See, e.g., id.* at Fig. 6, 6:30–31.

In citing da Costa, Petitioner explains that combining da Costa with Lih and Tarrats would “avoid pushing the obstruction farther into the user's airway while in use and to initiate blood circulation.” *See* Pet. 29 (citing Ex. 1005, 6:31–32).

Each of the Challenged Claims requires a connector with a “bottom plate,” yet Petitioner fails to explain how the combined references would yield a connector with such a plate. *See* Prelim. Resp. 30–33 (arguing the same); *see also* Ex. 1001, 10:14–17 (independent claim 1), 10:46 (independent claim 3), 11:63 (independent claim 9); 12:35–36 (independent claim 13). Neither of Lih's connector (element 118, Fig. 3) nor Tarrats's “connector” (element 15, Fig. 1) has a “plate,” and Petitioner fails to explain how the lower surface of da Costa's piston is being used to modify Lih's or Tarrats's connector to satisfy the claimed structure. *See* 35 U.S.C. § 322(a)(3); *see also* 37 C.F.R. § 42.204(b)(5); *see also* Pet. 28–29.

Further, Petitioner relies on da Costa's *heart resuscitating device*, rather than its dechoking device, in modifying Lih. *See* Pet. 29 (citing da Costa's Figure 6 and relief valves 55, 56). da Costa's heart resuscitation device, however, is used for *pumping air into a patient's lungs* for the purpose of initiating blood circulation in the event the patient's heart stopped

working. *See, e.g.*, Ex. 1005, 6:43–52. The pressure relief valves cited by Petitioner are presumably used to prevent over-pressurizing and under-pressurizing the patient’s lungs, which we understand would be dangerous for the patient. We do not see a skilled artisan as incorporating da Costa’s pressure relief valves into Lih’s choking intervention device, which is structured to *prevent* pumping air into a patient. *See, e.g.*, Ex. 1004, 4:3–5 (“bellows assembly 102 may include a relief valve 108 configured to allow air to escape . . . when the bellows 104 is being compressed”). Petitioner explains that the combination would “avoid pushing the obstruction farther into the user’s airway while in use and to initiate blood circulation” (*see* Pet. 29), yet Lih’s valve 108 already “avoid[s] pushing the obstruction farther into the user’s airway” and “initiat[ing] blood circulation” benefits a heart-resuscitation device, not Lih’s dechoking device.

Accordingly, we agree with Patent Owner that the proposed combination lacks sufficient reasoning. *See* Prelim. Resp. 33–37.

We further agree with Patent Owner that modifying Lih’s device so that it pumps air into a patient’s lungs for the purpose of “initiating blood circulation,” as reasoned by Petitioner (*see* Pet. 29), would render Lih’s device unsuitable as a dechoking device, which is its intended purpose. *See* Prelim. Resp. 37–38 (arguing the same). To reiterate, Lih’s dechoking device avoids introducing air into the patient’s lungs, which would further lodge an obstruction in the patient’s trachea. *See* Ex. 1004, 4:3–5.

For at least these reasons, the information presented in the Petition fails to demonstrate that it is more likely than not that at least 1 of the claims challenged is unpatentable over the combined teachings of Lih, Tarrats, and da Costa.

*D. Anticipated by Lih*

Petitioner submits in the alternative that Lih anticipates claims 1–17.  
*See* Pet. 18.

Each of the Challenged Claims require, *inter alia*, a connector comprising a “bottom plate.” Ex. 1001, 10:14–17 (independent claim 1), 10:46 (independent claim 3), 11:63 (independent claim 9); 12:35–36 (independent claim 13).

As explained above, the Examiner found that “Lih . . . fail[s] to disclose a bottom plate.” Ex. 1002, 142.

Despite the Examiner’s findings, Petitioner submits that Lih discloses a connector, specifically, element 118 (Pet. 35), which “is provided with a bottom plate” (*id.* at 38). To address the “bottom plate,” Petitioner states, “a bellows having a base with an opening configured to provide an access to an interior volume of the bellows assembly and dimensioned to be attached to a facemask via a facemask connector.” *Id.* at 38. Further, to address the requirement that “the first check valve and the second check valve are arranged on the bottom plate,” Petitioner states, “In various implementations, the relief valve 108 is positioned on [] a base 114 of the bellows 104.” *Id.* at 39.

Patent Owner responds that “the challenged claims have a very specific structural description of the claimed ‘connector’” (Prelim. Resp. 47) and that the Petition fails to account for the structural limitations of the claims (*see id.* at 46–47). Patent Owner argues, “Because Lih fails to disclose a connector comprising the claimed ‘bottom plate’ structure, Lih cannot anticipate the challenged claims.” *Id.* at 50. Patent Owner further argues that “Lih does not teach [the] first check valve, as claimed.” *Id.* at 48.

Patent Owner's arguments are persuasive. We agree with Patent Owner that Lih fails to disclose several of the claimed features.

As explained above, a post-grant review petition must identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim.” 35 U.S.C. § 322(a)(3). Our Rules further require that the petition must identify “the relevance of the evidence to the challenge raised, including identifying specific portions of the evidence that support the challenge.” 37 C.F.R. § 42.204(b)(5). In the present case, the Petition falls short of these requirements.

For example, although we understand Petitioner to rely on Lih's connector 118 for satisfying the recited “connector” (*see* Pet. 35), Petitioner fails to sufficiently explain or even cite to the record for addressing the requirement that the “connector is provided with a bottom plate” (*see id.* at 38). Petitioner simply states, “a bellows having a base with an opening configured to provide an access to an interior volume of the bellows assembly and dimensioned to be attached to a facemask via a facemask connector.” *See id.* at 38. This statement is not clear to us. Petitioner does not cite to the record or otherwise explain how a relatively simple cylindrical connector (Lih's element 118, as shown in Lih's Figure 3), has a “bottom plate.” *See id.* Furthermore, claim 1 requires that the “connector” includes a first and second check valve (Ex. 1001, 10:14–16), and nothing in Lih's figures depicts a first or second check valve on “connector” 118. In addressing the recited “first check valve,” Petitioner simply explains, “[i]n one embodiment the relief valve 108 is positioned [] on a base 114 of the bellows 104 . . . [and in another] example, the relief valve is positioned on the connector 414.” Pet. 37. This explanation is also not clear to us. In addressing the “second check valve,” Petitioner explains, “at least one relief

valve configured to allow air to escape from inside the bellows assembly when the bellows is compressed and prevent air from entering the bellows assembly when the bellows is expanded.” *Id.* at 38. This explanation is equally unclear. Petitioner does not cite to the record or otherwise explain how Lih discloses two check valves arranged on the connector. *See id.* at 37–38. We further note that Petitioner does not explain how the Examiner erred in finding that “Lih . . . fail[s] to disclose a bottom plate” (*compare id.*, with Ex. 1002, 142); we agree with the Examiner (*see* Ex. 1002, 142) and Patent Owner (*see* Prelim. Resp. 49–50) that Lih does not anticipate the challenged claims for at least this reason.

Accordingly, the information presented in the Petition fails to demonstrate that it is more likely than not that at least 1 of the Challenged Claims is anticipated by Lih.

#### IV. CONCLUSION

After considering the arguments presented in the Petition, the Preliminary Response, and the evidence of record, we determine that Petitioner has failed to establish that it is more likely than not that at least 1 of the Challenged Claims is unpatentable.

#### V. ORDER

Accordingly, it is

ORDERED that this Petition for post-grant review is denied.

PGR2023-00032  
Patent 11,478,575 B1

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