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Application Number	
Filing Date	Herewith
First Named Inventor	Ligui HE
Title	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR
Art Unit	
Examiner Name	
Attorney Docket Number	20942.0019US01

SIGNATURE of Applicant or Patent Practitioner

Signature	/rongcyang/	Date (Optional)	August 3, 2021
Name	Rong Yang	Registration Number	71,641
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐

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I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number

Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

52835

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

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I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

DCSTAR INC

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Dawei LUO

Date (Optional)

2019/07/10

Name

Dawei LUO

Title

CEO

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☒ Total of 1 forms are submitted.

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Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		
First Named Inventor/Applicant Name:		Ligui HE		
Filer:		Rong Yang/Satoko Furuya		
Attorney Docket Number:		20942.0019US01		
Filed as Small Entity				
Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
REQUEST FOR PRIORITIZED EXAMINATION	2817	1	2100	2100
Pages:				
Claims:				
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				3000

Electronic Acknowledgement Receipt	
EFS ID:	43419107
Application Number:	17393249
International Application Number:	
Confirmation Number:	4173
Title of Invention:	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR
First Named Inventor/Applicant Name:	Ligui HE
Customer Number:	52835
Filer:	Rong Yang/Satoko Furuya
Filer Authorized By:	Rong Yang
Attorney Docket Number:	20942.0019US01
Receipt Date:	03-AUG-2021
Filing Date:	
Time Stamp:	18:53:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 3000
RAM confirmation Number	E202183I54231882
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	TrackOne Request	TrackOne_Request_0019.pdf	128864	no	2
			014e9b8cd5f7141c3c69e2adebc07dc21fbx18e2		
Warnings:					
Information:					
2		Application_0019.pdf	2038057	yes	25
			80c09fd94b9824be5827833f6b7d971f9ee45799		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	15	
	Claims		16	20	
	Abstract		21	21	
	Drawings-only black and white line drawings		22	25	
Warnings:					
Information:					
3		PrelimAmend_0019.pdf	91459	yes	7
			5ab52717adde8343980f765106fde7907c908b6		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	7	
Warnings:					

Information:					
4	Application Data Sheet	ADS_0019-signed.pdf	1255799	no	8
			10ca962fd297eb0dedb5b5e696db4c4a3985c88		
Warnings:					
Information:					
5	Oath or Declaration filed	Declaration_0019.pdf	1513566	no	2
			a7b7dbd06cddf6694872d0a82d8218c04b9d85a6		
Warnings:					
Information:					
6	Power of Attorney	POA_0019-signed.pdf	6921970	no	2
			20d0841bd4709ae8fb177e5cde74535d8d72d08f		
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	50743	no	2
			cae85270f22663245eeb6e8e2aaa8a2aa8110ab9		
Warnings:					
Information:					
Total Files Size (in bytes):			12000458		
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**CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION
UNDER 37 CFR 1.102(e)** (Page 1 of 1)

First Named Inventor:	Ligui HE	Nonprovisional Application Number (if known):	
Title of Invention:	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently \$0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.
2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.
3. The applicable box is checked below:
 - I. ☒ **Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)**
 - i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.
---OR---
 - (b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.
 - ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, or the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.
 - II. ☐ **Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)**
 - i. A request for continued examination has been filed with, or prior to, this form.
 - ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
 - iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
 - iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
 - v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature <u>/rongcyang/</u>	Date <u>August 3, 2021</u>
Name (Print/Typed) <u>Rong Yang</u>	Practitioner Registration Number <u>71,641</u>
Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.*	
☐ *Total of _____ forms are submitted.	

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The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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SPECIFICATION

REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR

5

TECHNICAL FIELD

The disclosure relates to the technical field of medical instruments, and in particular to a removal device for removing an obstruction in a respiratory tract and a
10 connector.

BACKGROUND

Asphyxiation caused by an obstruction in a respiratory tract will often cause the
15 breathing to stop and is fatal, if first aid is not given within 4-6 minutes; and even if the life is saved, it will often cause irreversible damage due to lack of oxygen for an excessively long time. Therefore, in the rescue, it is necessary to race against the clock to remove the respiratory tract obstruction due to various causes, to make the airway unblocked, ensure that the wounded can be evacuated in a timely and safe
20 manner, and provide the wounded with opportunities of further treatment.

At present, "Heimlich Maneuver" is usually used to give the first aid to the patient with the respiratory tract obstruction. However, the public may cannot implement the "Heimlich Maneuver" first aid method correctly without training, which leads to death of the patient with the respiratory tract obstruction caused by
25 choking.

SUMMARY

The technical problem to be solved by the disclosure is to provide a removal
30 device for removing an obstruction in a respiratory tract which is simple in structure and operation and practically effective. The removal device is a backup device and a safety guarantee when the "Heimlich Maneuver" rescue method may not be implemented effectively or there is no others around for help. In addition, if your own

respiratory tract suffers obstruction and choking, the removal device may be utilized for self-rescue without the help of others around.

The other technical problem to be solved by the disclosure is to provide a connector used for the above removal device.

5 To solve the above technical problem, a technical solution used by the disclosure is to provide a removal device for removing an obstruction in a respiratory tract. The removal device comprises 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
10 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
15 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 attached to a face.

 When the removal device of the above technical solution is used, the flexible
20 annular pad of the face mask may encircle a mouth of a choked patient and be closely attached to a face, so as to be connected to a respiratory tract of the patient; and then, the face mask is held with one hand to keep a seal between the face mask and the face, and the collapsible gasbag is pressed downward and stretched with the other hand repeatedly, such that the obstruction in the respiratory tract of the patient may be
25 extracted out quickly. In the process of compressing the collapsible gasbag, gas in the gas storage cavity may be discharged to the outside through the second check valve, but may not enter the respiratory tract of the patient through the first check valve. In the process of stretching the collapsible gasbag, the volume of the gas storage cavity increases, and the second check valve may prevent the outside gas from flowing into
30 the gas storage cavity, so as to form negative pressure in the gas storage cavity, that is, gas pressure in the gas storage cavity is lower than gas pressure in the respiratory tract

of the patient, such that the gas pressure in the respiratory tract may push the obstruction outward, and thus discharge the obstruction out.

5 In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, the connector is provided with a plurality of second check valves, the plurality of second check valves encircling the first check valve. By arranging the plurality of second check valves, the discharge velocity of the gas in the gas storage cavity may be accelerated when the collapsible gasbag is compressed, which is conducive to improving the efficiency of downward pressing of the collapsible gasbag.

10 In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, the connector is provided with a bottom plate, the bottom plate being provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure made from an elastic material, and comprises a deformed portion and a first base portion which are connected to each other; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion; one ends, extending toward the center, of the at least three first slits intersect at the same point, and the first gas inlet end is a first vent hole provided in the middle of the first base portion; the first base portion extends into the central cylinder, and an outer side of the first base portion is hermetically connected to an inner side of the central cylinder; a lower end of the central cylinder is hermetically connected to an upper side of the face mask; the deformation portion is exposed out of the central cylinder and extends into the gas storage cavity; when gas flows into the deformation portion through the first vent hole, pressure in the deformation portion gradually increases such that the deformation portion is deformed by expansion, so that the at least three first slits are opened, thereby allowing the gas on the side of the first vent hole to flow into the gas storage cavity; and when the gas flowing into the deformation portion through the first vent hole is reduced or disappears, pressure in the deformation portion is reduced and even reduced to zero, and the deformation portion shrinks under its own elasticity such that the three first slits are closed, thereby preventing the gas in the gas storage cavity from flowing out of the first vent hole.

30

In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, the upper side of the face mask is provided with a connecting cylinder which is vertically through in the middle, the connecting cylinder being inserted into the inner side of the lower end of the central cylinder from bottom to top, and an outer side of the connecting cylinder being hermetically connected to the inner side of the central cylinder.

In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, an upper side of the bottom plate is provided with a first peripheral side wall encircling the central cylinder, an upper end of the first peripheral side wall shrinking inward to form a stop edge; the collapsible gasbag is provided with a second peripheral side wall made from an elastic material, the second peripheral side wall being provided with a plurality of layers of outwardly convex folds; and the first peripheral side wall covers the lowermost fold of the second peripheral side wall, and the stop edge covers an upper side of the lowermost fold. Therefore, the connector and the collapsible gasbag are guaranteed to be connected stably, so as to prevent the connector from being separated from the collapsible gasbag.

In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, a plurality of reinforcement strips are arranged on the upper side of the bottom plate, two opposite ends of each reinforcement strip being separately connected to the inner side of the first peripheral side wall and the outer side of the central cylinder. The reinforcement strip plays a role in stabilizing the connector, increasing the hardness of the connector, and therefore avoiding the situation that the first check valve or the second check valve deforms or components are not connected stably due to excessive deformation of the connector.

In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, a top wall of the collapsible gasbag is connected to a handle for holding. In this way, the handle may be held to press or stretch the collapsible gasbag, facilitating application of force by a rescuer.

In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, four first slits are provided, the four first slits being in the shape of a cross.

5 In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, 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 is reduced or disappears, 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.

20 In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, the connector is an integrally formed member made from an elastic material. The connector may guarantee desirable gas impermeability of the connector itself as the integrally formed member, which is conducive to forming negative pressure in the gas storage cavity of the collapsible gasbag.

25 In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, the face mask, the connector and the collapsible gasbag are integral.

30 In the removal device for removing an obstruction in a respiratory tract provided by the disclosure, the collapsible gasbag is not provided with a vent hole which is in direct communication with the outside.

To solve the other technical problem, according to a technical solution used by the disclosure, a connector for a removal device is provided. The connector comprises 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.

In the connector provided by the disclosure, the connector is provided with one first check valve and a plurality of second check valves, the plurality of second check valves encircling the first check valve.

In the connector provided by the disclosure, the bottom plate is provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure and comprises a deformed portion and a first base portion which are connected to each other, and a first gas outlet end and a second vent hole of the first check valve are provided in the deformed portion and the first base portion respectively; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion, one ends, extending toward the center, of the at least three first slits intersecting at the same point; and the first gas inlet end is a first vent hole provided in the middle of the first base portion.

In the connector provided by the disclosure, 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, a second gas outlet end and a second gas inlet end of the second check valve are provided in the duckbill portion and the second base portion respectively; the second gas inlet end is a second vent hole provided in the middle of the second base portion; the second gas outlet end is a second slit provided in the duckbill portion; and the duckbill portion and the deformed portion separately face two opposite sides of the bottom plate.

In the connector provided by the disclosure, the removal device is the removal device mentioned above.

The removal device of the disclosure may at least achieve the following beneficial effects when implemented: the removal device comprises 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 attached to a face. When the removal device is used, the flexible annular pad of the face mask may encircle a mouth of a choked patient and be closely attached to a face, so as to be connected to a respiratory tract of the patient; and then, the face mask is held with one hand, so as to keep a seal between the face mask and the face, and the collapsible gasbag is quickly pressed downward and stretched with the other hand repeatedly, such that the obstruction in the respiratory tract of the patient may be extracted out. In this way, the removal device may be used as a backup device and a safety guarantee in the case of obstruction and choking rescue when the Heimlich Maneuver rescue method is ineffective or there is no others around for help.

20

BRIEF DESCRIPTION OF THE DRAWINGS

In order to more clearly explain the embodiments of the disclosure or the technical solutions in the prior art, the drawings to be used in the description of the embodiments or the prior art will be briefly introduced below. Obviously, the drawings in the following description are only embodiments of the disclosure. For those of ordinary skill in the art, other drawings may be obtained according to the provided drawings without any creative work.

Fig. 1 is a three-dimensional combined schematic diagram of a removal device provided in this embodiment;

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Fig. 2 is a three-dimensional exploded schematic diagram (I) of the removal device provided in this embodiment;

Fig. 3 is a three-dimensional exploded schematic diagram (II) of the removal device provided in this embodiment; and

5 Fig. 4 is a combined schematic diagram of a connector and a collapsible gasbag provided in this embodiment.

Description of reference numerals in specific implementations:

Face mask	1	Collapsible gasbag	3
Flexible annular pad	11	Handle	31
Connecting cylinder	12	Opening	32
Connector	2	Second peripheral side wall	33
First check valve	21	Second check valve	22
Bottom plate	23	First peripheral side wall	24
Peripheral cylinder	25	Central cylinder	26
Stop edge	241	Reinforcement strip	27
Deformed portion	212	First slit	2121
Duckbill portion	222	Second slit	2221
Second base portion	221	Fold	331

DETAILED DESCRIPTION

10 In order to facilitate understanding of the disclosure, the disclosure will be described more comprehensively below with reference to related drawings. Typical embodiments of the disclosure are given in the drawings. However, the disclosure may be implemented in many different forms, which are not limited to the embodiments described herein. On the contrary, the purpose of providing these
15 embodiments is to make the summary of the disclosure more thorough and comprehensive.

Unless otherwise defined, all technical and scientific terms used herein have the same meaning as commonly understood by those skilled in the technical field of the

disclosure. The terms used in the specification of the disclosure herein is for the purpose of describing specific embodiments, and are not intended to limit the disclosure.

5 This embodiment provides a removal device for removing an obstruction in a respiratory tract. With reference to Fig. 1, Fig. 1 is a three-dimensional combined schematic diagram of a removal device provided in this embodiment. As shown in Fig. 1, the removal device comprises a collapsible gasbag 3, a connector 2 and a face mask 1 which are sequentially connected. With reference to Fig. 2, Fig. 2 is a three-dimensional exploded schematic diagram (I) of the removal device provided in
10 this embodiment. As shown in Fig. 2, the collapsible gasbag 3 is internally provided with a gas storage cavity, the top of the collapsible gasbag 3 is sealed, and the bottom of the collapsible gasbag is provided with an opening 32 in communication with the gas storage cavity. In this embodiment, an upper side of the connector 2 is hermetically connected to the opening 32, with details shown in Fig. 3. Fig. 3 is a three-dimensional exploded schematic diagram (II) of the removal device provided in
15 this embodiment. As shown in Fig. 3, the connector 2 is made from an elastic material, and is provided with a bottom plate 23, an upper side of the 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 241, the collapsible gasbag
20 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. The inner diameter of the stop edge 241 is smaller than the lowermost fold 331 of the collapsible gasbag 3. Since both the collapsible gasbag 3 and the connector 2 are made from the elastic material, the lowermost fold 331 of the
25 collapsible gasbag 3 may be deformed to enter a bayonet defined by the stop edge 241. The collapsible gasbag 3 is not provided with a vent hole which is in direct communication with the outside. With reference to Fig. 4, Fig. 4 is a combined schematic diagram of the connector 2 and the collapsible gasbag 3 provided in this embodiment. As shown in Fig. 4, when the connector 2 and the collapsible gasbag 3
30 are connected and combined, the second peripheral side wall 33 is inserted into the first peripheral side wall 24, the first peripheral side wall 24 covers the lowermost

fold 331 of the second peripheral side wall 33, and the stop edge 241 covers an upper side of the lowermost fold 331. Therefore, the connector 2 and the collapsible gasbag 3 are guaranteed to be connected stably, so as to prevent the connector 2 from being separated from the collapsible gasbag 3. In addition, the outer side of the second peripheral side wall 33 is closely attached to the inner side of the first peripheral side wall 24, so as to guarantee desirable gas impermeability between the connector 2 and the collapsible gasbag 3. In this embodiment, the connector 2 is provided with a first check valve 21, and a first gas outlet end of the first check valve 21 is in communication with the gas storage cavity, with details shown in Fig. 3. The bottom plate 23 is provided with a central cylinder 26 which is vertically through and encircled by the first peripheral side wall 24; the first check valve 21 is of a hollowed structure made from an elastic material, and comprises a deformed portion 212 and a first base portion which are connected to each other; and the first gas outlet end is composed of four first slits 2121 provided at a top end of the deformed portion 212, the four first slits 2121 being in the shape of a cross, and one ends, extending toward the center, of the four first slits 2121 intersecting at the same point. Certainly, in some other embodiments, the number of the first slits 2121 on the first check valve 21 may be 3, 5 or 6, etc. The first gas inlet end is a first vent hole provided in the middle of the first base portion. The first base portion extends into the central cylinder 26, and the outer side of the first base portion is hermetically connected to the inner side of the central cylinder 26; and a lower end of the central cylinder 26 is hermetically connected to an upper side of the face mask 1. The deformation portion is exposed out of the central cylinder 26 and extends into the gas storage cavity. It may be understood that when gas flows into the deformation portion through the first vent hole, pressure in the deformation portion gradually increases such that the deformation portion is deformed by expansion, so that the four first slits 2121 are opened, thereby allowing the gas on the side of the first vent hole to flow into the gas storage cavity; and when the gas flowing into the deformation portion through the first vent hole is reduced or disappears, pressure in the deformation portion is reduced and even reduced to zero, and the deformation portion shrinks under its own elasticity such that the four first slits 2121 are closed, thereby preventing the gas in the gas

storage cavity from flowing out of the first vent hole. In this embodiment, the connector 2 is further provided with a second check valve 22, a second gas inlet end of the second check valve 22 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.

5 Still referring to Fig. 3 for details, the bottom plate 23 is provided with a peripheral cylinder 25 which is vertically through and encircled by the first peripheral side wall 24. The second check valve 22 is a duckbill valve, the second check valve 22 comprises a duckbill portion 222 and a second base portion 221 which are connected to each other, the second gas inlet end is a second vent hole provided in the middle of

10 the second base portion 221, and the second gas outlet end is a second slit 2221 provided in the duckbill portion 222. The outer side of the second base portion 221 is hermetically connected to the inner side of the peripheral cylinder 25, and the second vent hole of the second base portion 221 is in communication with the gas storage cavity. With reference to Fig. 2, the duckbill portion 222 extends into the peripheral

15 cylinder 25, and a lower end of the peripheral cylinder 25 is in communication with the outside. It may be understood that when gas flows into the duckbill portion through the second vent hole, pressure in the duckbill portion 222 gradually increases such that the duckbill portion 222 is deformed by expansion, so that the second slit 2221 is opened, thereby allowing gas in the gas storage cavity to be discharged to the

20 outside. When gas flowing into the duckbill portion through the second vent hole is reduced or disappears, pressure in the deformation portion is reduced and even reduced to zero, and the duckbill portion 222 shrinks under its own elasticity such that the second slit 2221 is closed, thereby preventing outside gas from flowing into the gas storage cavity through the second vent hole. In this embodiment, an upper

25 side of the face mask 1 is hermetically connected to a first gas inlet end of the first check valve 21. With reference to Fig. 3 for details, the upper side of the face mask 1 is provided with a connecting cylinder 12 which is vertically through in the middle. When the face mask 1 and the connector 2 are combined, the connecting cylinder 12 is inserted into the inner side of the lower end of the central cylinder 26 from bottom

30 to top, and the outer side of the connecting cylinder 12 is hermetically connected to

the inner side of the central cylinder 26. With reference to Fig. 2 and Fig. 3, a lower side of the face mask 1 is provided with a flexible annular pad 11 attached to a face.

When the removal device provided in this embodiment is used for rescuing a choked patient, the flexible annular pad 11 of the face mask 1 encircles a mouth of the choked patient and is closely attached to a face so as to be connected to a respiratory tract of the patient; and then, the face mask 1 is held with one hand to keep a seal between the face mask 1 and the face, and the collapsible gasbag 3 is pressed downward and stretched with the other hand repeatedly, such that the obstruction in the respiratory tract of the patient may be extracted out quickly. It should be explained that 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. In the process of stretching the collapsible gasbag 3, the volume of the gas storage cavity increases, the second slit 2221 of the second check valve 22 is tightly closed, so as to prevent the outside gas from flowing into the gas storage cavity, and thus form negative pressure in the gas storage cavity, that is, gas pressure in the gas storage cavity is lower than gas pressure in the respiratory tract of the patient, gas flows from the outside of the collapsible gasbag 3 to the inside of the collapsible gasbag 3 at the first check valve 21, such that the gas pressure in the respiratory tract may push the obstruction outward, and thus discharge the obstruction out of the first check valve 21 into the collapsible gasbag 3, and the closed collapsible gasbag 3 may collect some debris from an oral cavity and esophagus to avoid residual backflow in the collapsible gasbag 3.

To sum up, by using the removal device, the patient suffering from respiratory tract obstruction and choking may be rescued quickly and effectively only by repeating simple stretching operations. Therefore, under the condition that the “Heimlich Maneuver” rescue method may not be effectively implemented, we may utilize the removal device to quickly and effectively rescue the patient with the respiratory tract obstruction and choking. In addition, if your own respiratory tract

suffers obstruction and choking, the removal device may be utilized for effective self-rescue without the help of others around.

It should be pointed out that in the process of compressing the collapsible gasbag 3, the gas in the gas storage cavity of the collapsible gasbag 3 is compressed, gas pressure in the gas storage cavity increases, and the deformation portion of the first check valve 21 is pressed and compressed further, such that the first slit 2121 of the first check valve 21 is closed more tightly, and the gas in the gas storage cavity is better prevented from flowing into the respiratory tract of the patient through the first check valve 21. Similarly, in the process of stretching the collapsible gasbag 3, gas pressure in the gas storage cavity decreases, and the duckbill portion 222 of the second check valve 22 is further contracted under the action of the outside gas pressure, such that the second slit 2221 of the second check valve is closed more tightly, and outside gas is better prevented from flowing into the gas storage cavity, which is conducive to forming higher and more stable negative pressure in the storage cavity.

It is worth mentioning that the deformation portion of the gas outlet end of the first check valve 21 is provided with four first slits 2121 in communication with one another, which makes it easier to open the gas outlet end of the first check valve 21 (compared with a common duckbill valve), and is conducive to extracting out the obstruction in the respiratory tract of the patient.

It should be noted that when the removal device is used, the flexible annular pad 11 may encircle the mouth (or the mouth and nose) of the choked patient at the same time. In addition, the flexible annular pad 11 may be suitable for different face types, such that the face mask 1 may be closely attached to the faces of different patients, and desirable gas impermeability between the face mask 1 and the face of the patient is ensured. In addition, the flexible annular pad 11 may be used as a buffer during compression, so as to avoid injury to the face of the patient.

Further, the connector 2 is an integrally formed member made from an elastic material. That is, the bottom plate 23, the first peripheral side wall 24, the central cylinder 26, the peripheral cylinder 25, the first check valve 21 and the second check valve 22 are integrally formed. In this way, the gas impermeability of the connector 2

itself may be ensured, and therefore stable negative pressure may be formed in the gas storage cavity.

Further, the face mask 1, the connector 2 and the collapsible gasbag 3 are integral, and the face mask 1, the connector 2 and the collapsible gasbag 3 are non-detachable, which does not need assembly before use, and facilitates immediate use. In addition, the phenomenon that the face mask 1, the connector 2 and the collapsible gasbag 3 are separated from one another during use is prevented.

Further, with reference to Fig. 3, the connector 2 is provided with a plurality of second check valves 22, the plurality of second check valves 22 encircling the first check valve 21. Herein, by arranging the plurality of second check valves 22, the discharge velocity of the gas in the gas storage cavity may be accelerated when the collapsible gasbag 3 is compressed, which is conducive to improving the efficiency of downward pressing of the collapsible gasbag 3.

Further, with reference to Fig 3, a plurality of reinforcement strips 27 are arranged on the upper side of the bottom plate 23, two opposite ends of each reinforcement strip 27 being separately connected to the inner side of the first peripheral side wall 24 and the outer side of the central cylinder 26. Herein, the reinforcement strip 27 plays a role in stabilizing the connector 2, increasing the hardness of the connector 2, and therefore avoiding the situation that the first check valve 21 or the second check valve 22 deforms or components are not connected stably due to excessive deformation of the connector 2.

Further, a top wall of the collapsible gasbag 3 is connected to a handle 31 for holding. In this way, the handle 31 may be held to press or stretch the collapsible gasbag 3, facilitating application of force by a rescuer. Certainly, in some other embodiments, the handle 31 may also be replaced with a knob, which is also conducive to downward pressing and pulling operation on the collapsible gasbag 3 by the rescuer.

The embodiments of the disclosure have been described above with reference to the drawings, but the disclosure is not limited to the above detailed description. The above detailed description is only schematic, not limiting. Under the enlightenment of the disclosure, those of ordinary skill in the art can make many forms without

departing from the spirit of the disclosure and the scope of protection of the claims,
all of which fall within the protection of the disclosure.

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CLAIMS

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
5 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
10 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

15 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 attached to a face.

2. The removal device for removing an obstruction in a respiratory tract
20 according to claim 1, wherein the connector is provided with a plurality of second check valves, the plurality of second check valves encircling the first check valve.

3. The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the connector is provided with a bottom plate, the
25 bottom plate being provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure made from an elastic material, and comprises a deformed portion and a first base portion which are connected to each other; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion; one ends, extending toward the center, of the at least
30 three first slits intersect at the same point, and the first gas inlet end is a first vent hole provided in the middle of the first base portion; the first base portion extends into the

central cylinder, and an outer side of the first base portion is hermetically connected to an inner side of the central cylinder; a lower end of the central cylinder is hermetically connected to an upper side of the face mask; the deformation portion is exposed out of the central cylinder and extends into the gas storage cavity; when gas
5 flows into the deformation portion through the first vent hole, pressure in the deformation portion gradually increases such that the deformation portion is deformed by expansion, so that the at least three first slits are opened, thereby allowing the gas on the side of the first vent hole to flow into the gas storage cavity; and when the gas flowing into the deformation portion through the first vent hole is
10 reduced or disappears, pressure in the deformation portion is reduced and even reduced to zero, and the deformation portion shrinks under its own elasticity such that the three first slits are closed, thereby preventing the gas in the gas storage cavity from flowing out of the first vent hole.

15 4. The removal device for removing an obstruction in a respiratory tract according to claim 3, wherein the upper side of the face mask is provided with a connecting cylinder which is vertically through in the middle, the connecting cylinder being inserted into the inner side of the lower end of the central cylinder from bottom to top, and an outer side of the connecting cylinder being hermetically connected to
20 the inner side of the central cylinder.

5. The removal device for removing an obstruction in a respiratory tract according to claim 3, wherein an upper side of the bottom plate is provided with a first peripheral side wall encircling the central cylinder, an upper end of the first
25 peripheral side wall shrinking inward to form a stop edge; the collapsible gasbag is provided with a second peripheral side wall made from an elastic material, the second peripheral side wall being provided with a plurality of layers of outwardly convex folds; and the first peripheral side wall covers the lowermost fold of the second peripheral side wall, and the stop edge covers an upper side of the lowermost fold.

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6. The removal device for removing an obstruction in a respiratory tract according to claim 5, wherein a plurality of reinforcement strips are arranged on the upper side of the bottom plate, two opposite ends of each reinforcement strip being separately connected to the inner side of the first peripheral side wall and the outer side of the central cylinder.

7. The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein a top wall of the collapsible gasbag is connected to a handle for holding.

8. The removal device for removing an obstruction in a respiratory tract according to claim 3, wherein four first slits are provided, the four first slits being in the shape of a cross.

9. The removal device for removing an obstruction in a respiratory tract according to claim 1, 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.

5 10. The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the connector is an integrally formed member made from an elastic material.

10 11. The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the face mask, the connector and the collapsible gasbag are integral.

15 12. The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the collapsible gasbag is not provided with a vent hole which is in direct communication with the outside.

20 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.

25 14. The connector according to claim 13, wherein the connector is provided with one first check valve and a plurality of second check valves, the plurality of second check valves encircling the first check valve.

30 15. The connector according to claim 14, wherein the bottom plate is provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure and comprises a deformed portion and a first base portion which are connected to each other, and a first gas outlet end and a second vent hole of the first check valve are provided in the deformed portion and the first base portion respectively; the first gas outlet end is composed of at least three first slits provided

at a top end of the deformed portion, one ends, extending toward the center, of the at least three first slits intersecting at the same point; and the first gas inlet end is a first vent hole provided in the middle of the first base portion.

5 16. The connector according to claim 15, wherein 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, and a second gas outlet end and a second gas inlet end of the second check valve are provided in the duckbill portion and the second base portion respectively; the second gas inlet end is a second vent
10 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; and the duckbill portion and the deformed portion separately face two opposite sides of the bottom plate.

15 17. The connector according to claim 15, wherein the removal device is the removal device of claim 1.

ABSTRACT

A removal device includes a collapsible gasbag, a connector and a face mask, wherein the collapsible gasbag is provided with a gas storage cavity and an opening;
5 the connector is 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 the face
10 mask is connected to a first gas inlet end of the first check valve, and the face mask is provided with a flexible annular pad.

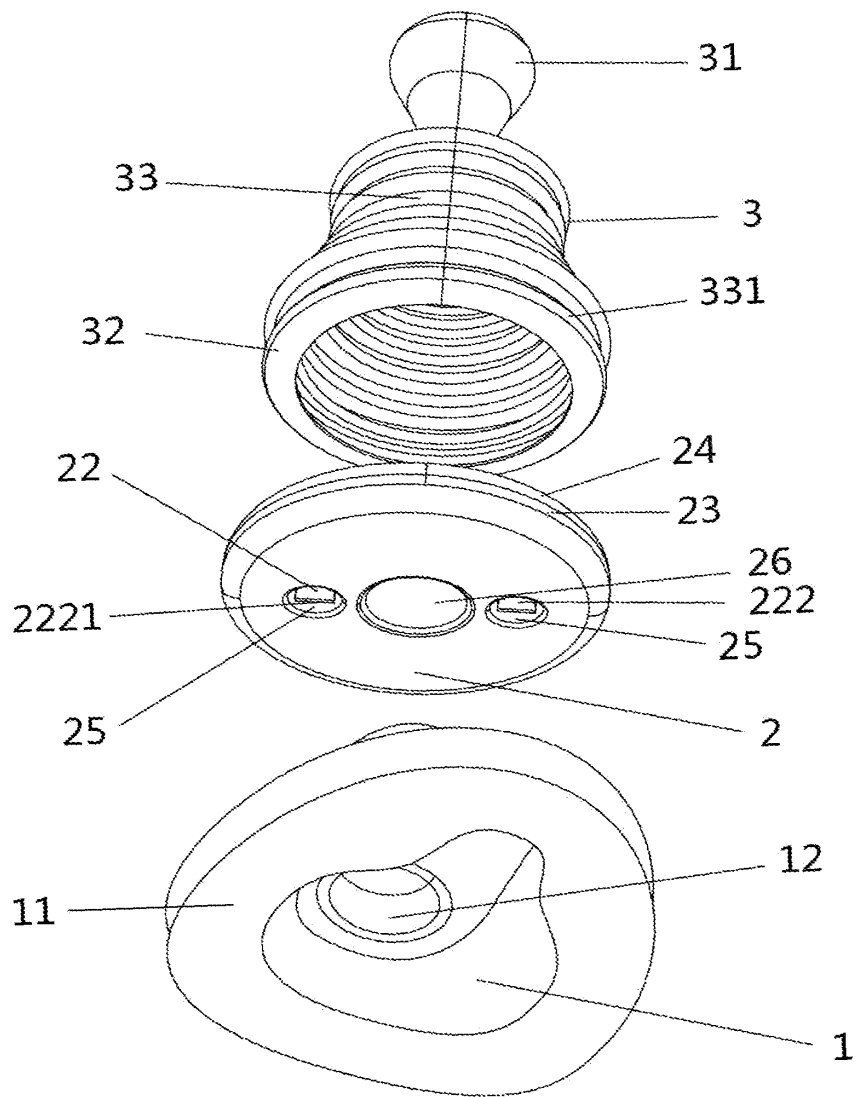


Fig. 2

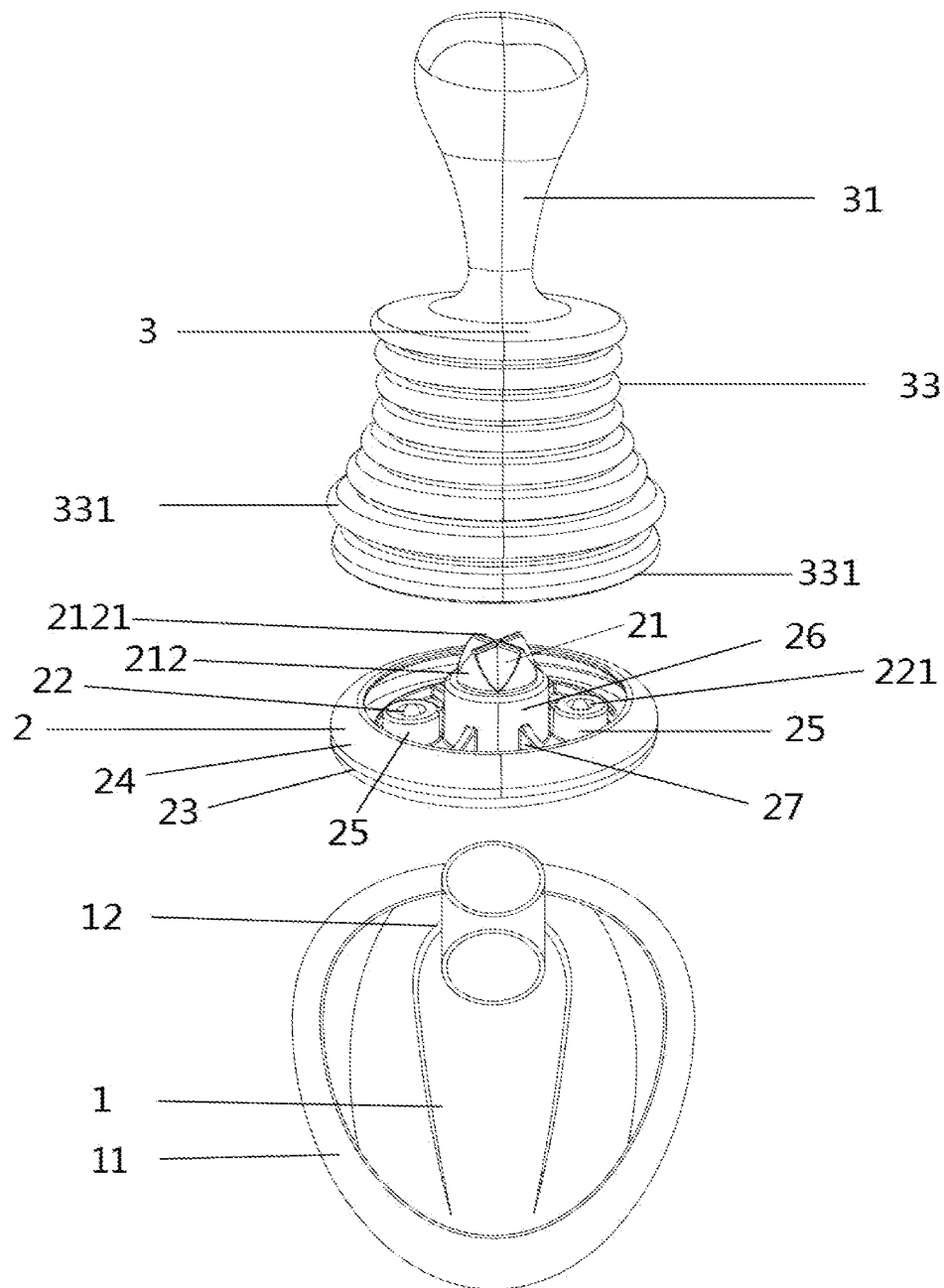
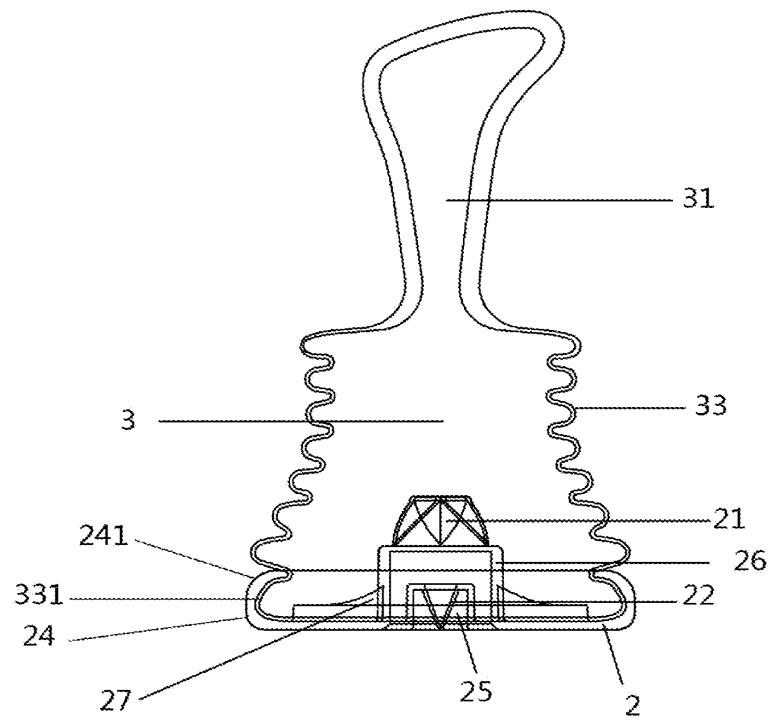


Fig. 3

*Fig. 4*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship:	HE	Examiner:	Unknown
Serial No.:	Unknown	Group Art Unit:	Unknown
Filed:	Herewith	Docket No.:	20942.0019US01
Title:	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

CERTIFICATE OF TRANSMISSION

I hereby certify that this paper is being transmitted by EFS Web to the United States Patent & Trademark Office on August 3, 2021.

By: /Satoko Furuya/

Name: Satoko Furuya

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In connection with the above-identified application filed herewith, please enter the following preliminary amendment:

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Original) 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 attached to a face.

2. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the connector is provided with a plurality of second check valves, the plurality of second check valves encircling the first check valve.

3. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the connector is provided with a bottom plate, the bottom plate being provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure made from an elastic material, and comprises a deformed portion and a first base portion which are connected to each other; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion; one ends, extending toward the center, of the at least three first slits intersect at the same point, and the first gas inlet end is a first vent hole provided in the middle of the first base portion; the first base portion extends into the

central cylinder, and an outer side of the first base portion is hermetically connected to an inner side of the central cylinder; a lower end of the central cylinder is hermetically connected to an upper side of the face mask; the deformation portion is exposed out of the central cylinder and extends into the gas storage cavity; when gas flows into the deformation portion through the first vent hole, pressure in the deformation portion gradually increases such that the deformation portion is deformed by expansion, so that the at least three first slits are opened, thereby allowing the gas on the side of the first vent hole to flow into the gas storage cavity; and when the gas flowing into the deformation portion through the first vent hole is reduced or disappears, pressure in the deformation portion is reduced and even reduced to zero, and the deformation portion shrinks under its own elasticity such that the three first slits are closed, thereby preventing the gas in the gas storage cavity from flowing out of the first vent hole.

4. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 3, wherein the upper side of the face mask is provided with a connecting cylinder which is vertically through in the middle, the connecting cylinder being inserted into the inner side of the lower end of the central cylinder from bottom to top, and an outer side of the connecting cylinder being hermetically connected to the inner side of the central cylinder.

5. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 3, wherein an upper side of the bottom plate is provided with a first peripheral side wall encircling the central cylinder, an upper end of the first peripheral side wall shrinking inward to form a stop edge; the collapsible gasbag is provided with a second peripheral side wall made from an elastic material, the second peripheral side wall being provided with a plurality of layers of outwardly convex folds; and the first peripheral side wall covers the lowermost fold of the second peripheral side wall, and the stop edge covers an upper side of the lowermost fold.

6. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 5, wherein a plurality of reinforcement strips are arranged on the upper side of the bottom plate, two opposite ends of each reinforcement strip being separately connected to the inner side of the first peripheral side wall and the outer side of the central cylinder.

7. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein a top wall of the collapsible gasbag is connected to a handle for holding.
8. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 3, wherein four first slits are provided, the four first slits being in the shape of a cross.
9. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 1, 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.
10. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the connector is an integrally formed member made from an elastic material.
11. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the face mask, the connector and the collapsible gasbag are integral.

12. (Original) The removal device for removing an obstruction in a respiratory tract according to claim 1, wherein the collapsible gasbag is not provided with a vent hole which is in direct communication with the outside.
13. (Original) 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.
14. (Original) The connector according to claim 13, wherein the connector is provided with one first check valve and a plurality of second check valves, the plurality of second check valves encircling the first check valve.
15. (Original) The connector according to claim 14, wherein the bottom plate is provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure and comprises a deformed portion and a first base portion which are connected to each other, and a first gas outlet end and a second vent hole of the first check valve are provided in the deformed portion and the first base portion respectively; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion, one ends, extending toward the center, of the at least three first slits intersecting at the same point; and the first gas inlet end is a first vent hole provided in the middle of the first base portion.
16. (Original) The connector according to claim 15, wherein 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, and a second gas outlet end and a second gas inlet end of the second check valve are provided in the duckbill portion and the second base portion respectively; 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; and the duckbill portion and the deformed portion separately face two opposite sides of the bottom plate.

17. (Currently Amended) The connector according to claim 15, wherein the removal device is ~~the removal device of claim 1~~ configured to remove an obstruction in a respiratory tract, the removal device comprising a collapsible gasbag, the 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; the 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 the first gas inlet end of the first check valve, and a lower side of the face mask is provided with a flexible annular pad attached to a face.

REMARKS

The above preliminary amendment is made to remove multiple dependencies from claim 17. No new matter has been added.

Applicants respectfully request that the preliminary amendment described herein be entered into the record prior to calculation of the filing fee and prior to examination and consideration of the above-identified application.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's primary attorney-of record, Rong Yang (Reg. No. 71.641), at (612) 455-3816.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
45 S. 7th St., Suite 2700
Minneapolis, MN 55402
(612) 455-3800

Dated: August 3, 2021

By: /rongcyang/
Rong Yang
Reg. No.: 71,641
CY/sf

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20942.0019US01
		Application Number	
Title of Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor	1				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Ligui		HE			
Residence Information (Select One) • US Residency Non US Residency Active US Military Service						
City	New York	State/Province	NY	Country of Residence	US	
Mailing Address of Inventor:						
Address 1	228 Park Ave S 79525					
Address 2						
City	New York	State/Province	NY			
Postal Code	10003	Country	US			
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.						
Add						

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.			
For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence information of this application.			
Customer Number	52835		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		
Attorney Docket Number	20942.0019US01	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	3

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20942.0019US01
		Application Number	
Title of Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	52835		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button. Add			

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20942.0019US01
		Application Number	
Title of Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	Remove

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20942.0019US01
		Application Number	
Title of Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20942.0019US01
		Application Number	
Title of Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant	1	Remove	
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
		Clear	
☒ Assignee	Legal Representative under 35 U.S.C. 117		Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	DCSTAR INC		
Mailing Address Information For Applicant:			
Address 1	228 Park Ave S 79525		
Address 2			
City	New York	State/Province	NY
Country	US	Postal Code	10003
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20942.0019US01
		Application Number	
Title of Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
				Remove
If the Assignee or Non-Applicant Assignee is an Organization check here.				☐
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				Add

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/rongcyang/		Date (YYYY-MM-DD)	2021-08-03
First Name	Rong	Last Name	Yang	Registration Number
				71,641
Additional Signature may be generated within this form by selecting the Add button.				Add

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	20942.0019US01
		Application Number	
Title of Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR
As the below named inventor, I hereby declare that: This declaration is directed to: ☒ The attached application, or ☐ United States application or PCT international application number _____ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available. LEGAL NAME OF INVENTOR Inventor: <u>Ligui HE</u> Date (Optional): <u>7.30.2021</u> Signature: <u>Ligui HE</u> Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
17/393,249	08/03/2021		830	20942.0019US01	17	2

CONFIRMATION NO. 4173

FILING RECEIPT

52835
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
45 South Seventh Street
Suite 2700
Minneapolis, MN 55402-1683



0000000128082304

Date Mailed: 09/01/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Ligui HE, New York, NY;

Applicant(s)

DCSTAR INC, New York, NY;

Power of Attorney: The patent practitioners associated with Customer Number 52835

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/30/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/393,249**

Projected Publication Date: 02/09/2023

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 17/393,249	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	17	minus 20 = *	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *	x 240 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	830		TOTAL	
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus **	=	x	=	OR
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x	=	OR
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus **	=	x	=	OR
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x	=	OR
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173
52835 7590 11/01/2021 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. 45 South Seventh Street Suite 2700 Minneapolis, MN 55402-1683			EXAMINER CENTRAL, DOCKET	
			ART UNIT OPAP	PAPER NUMBER
			NOTIFICATION DATE 11/01/2021	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOMail@hsmll.com

<i>Decision Granting Request for Prioritized Examination (Track I)</i>	Application No. 17/393,249	Applicant(s) HE, Ligui	
	Examiner DIANE C GOODWYN	Art Unit OPET	AIA (FITF) Status Yes
1. THE REQUEST FILED <u>03 August 2021</u> IS GRANTED . The above-identified application has met the requirements for prioritized examination A. ☒ for an original nonprovisional application (Track I). B. ☐ for an application undergoing continued examination (RCE). 2. The above-identified application will undergo prioritized examination. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs: A. filing a <u>petition for extension of time</u> to extend the time period for filing a reply; B. filing an <u>amendment to amend the application to contain more than four independent claims, more than thirty total claims</u>, or a multiple dependent claim; C. filing a <u>request for continued examination</u> ; D. filing a notice of appeal; E. filing a request for suspension of action; F. mailing of a notice of allowance; G. mailing of a final Office action; H. completion of examination as defined in 37 CFR 41.102; or I. abandonment of the application. Telephone inquiries with regard to this decision should be directed to DIANE GOODWYN at (571) 272-6735. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.			
/DIANE C GOODWYN/ Paralegal Specialist, OPET			



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173

52835	7590	03/02/2022
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.		
45 South Seventh Street		
Suite 2700		
Minneapolis, MN 55402-1683		

EXAMINER	
BALLER, KELSEY E	

ART UNIT	PAPER NUMBER
3785	

NOTIFICATION DATE	DELIVERY MODE
03/02/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOMail@hsmll.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Amendment

2. This office action is in response to the preliminary amendment filed 8/3/21. Claim 17 has been amended, no new claims have been added, and no claims have been cancelled. Thus claims 1-17 are presently pending in this application.

Claim Objections

3. Claims 2-12 are objected to because of the following informalities: In lines 1-2 of each claim 2-12 "The removal device for removing an obstruction in a respiratory tract according" should be --The removal device for removing the obstruction in the respiratory tract according--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

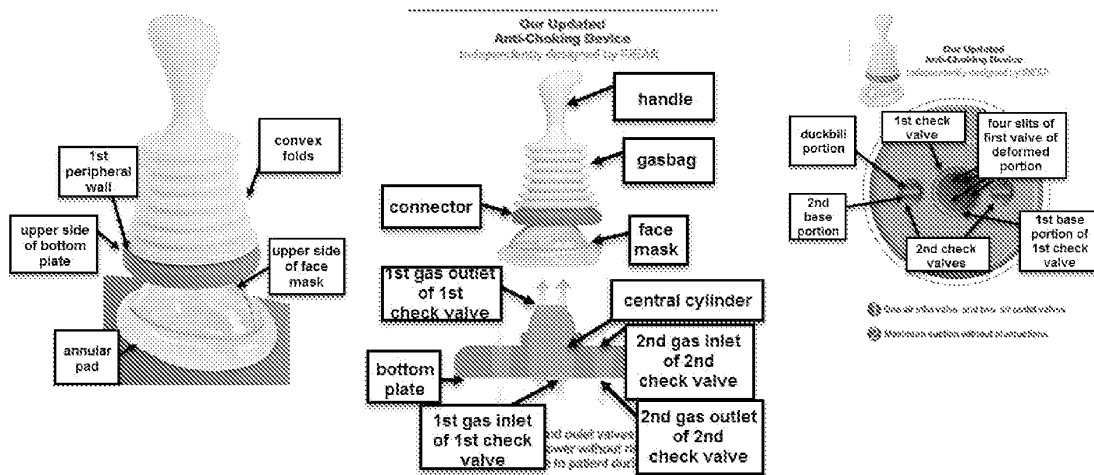
4. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

6. Claims 1-3, 5, 7-17 rejected under 35 U.S.C. 102(a)(1) based upon a public use or sale or other public availability of the invention. IDEAR anti-choke device has been listed on sale on Amazon since April 28, 2021, herein referred to as IDEAR.



Annotated figs of IDEAR anti-choke device.

With respect to claim 1, IDEAR discloses a removal device for removing an obstruction in a respiratory tract (choking rescue device), the removal device comprising a collapsible gasbag (see annotated fig of IDEAR device), a connector (see annotated fig of IDEAR device) and a face mask (see annotated fig of IDEAR device) which are sequentially connected (see the device is one piece when all together), wherein the collapsible gasbag is internally provided with a gas storage cavity (inner space of gas bag), the top of the collapsible gasbag is sealed (bag is closed with no openings on top), 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 (air inlet valve) and a second check valve (air outlet valve); a first gas outlet end of the first check valve (see annotated fig of IDEAR device) is in communication with the gas storage cavity (see how the connector top is connected to the gasbag), a second gas inlet end of the second check

valve (see annotated fig of IDEAR device) is in communication with the gas storage cavity (see how the top of the connector is connected to the gasbag), and a second gas outlet end of the second check valve (see annotated fig of IDEAR device) is in communication with the outside (see video of device at 19 seconds showing second check valves exposed to the outside); and an upper side of the face mask is hermetically connected to a first gas inlet end of the first check valve (see video of device at 20 seconds showing first check valve is connected to the face mask in the middle of the connector), and a lower side of the face mask is provided with a flexible annular pad (see annotated fig of IDEAR device) attached to a face (see annotated fig of IDEAR device).

With respect to claim 2, IDEAR discloses the connector is provided with a plurality of second check valves (see two air outlet valves), the plurality of second check valves encircling the first check valve (two air outlet valves are around the one inlet valve).

With respect to claim 3, IDEAR discloses the connector is provided with a bottom plate (see annotated fig of IDEAR device), the bottom plate being provided with a central cylinder (see annotated fig of IDEAR device) which is vertically through (see arrows through air inlet); the first check valve is of a hollowed structure (see through hole of 1st check valve) made from an elastic material, and comprises a deformed portion (see annotated fig of IDEAR device) and a first base portion (see annotated fig of IDEAR device) which are connected to each other (see the two structures connected on the connector); the first gas outlet end is composed of at least three first slits (see annotated fig of IDEAR device) provided at a top end of the deformed portion; one ends, extending toward the center of the at least three first slits intersect at the same point (valve slits connect to forma cross shape), and the first gas inlet end is a first vent hole provided in the middle of the first base portion (see air inlet valve in the middle of the base

portion in device figure); the first base portion extends into the central cylinder, (see annotated fig of IDEAR device) and an outer side of the first base portion is hermetically connected to an inner side of the central cylinder; a lower end of the central cylinder is hermetically connected to an upper side of the face mask; the deformation portion is exposed out of the central cylinder and extends into the gas storage cavity; when gas flows into the deformation portion through the first vent hole, pressure in the deformation portion gradually increases such that the deformation portion is deformed by expansion, so that the at least three first slits are opened, thereby allowing the gas on the side of the first vent hole to flow into the gas storage cavity; and when the gas flowing into the deformation portion through the first vent hole is reduced or disappears, pressure in the deformation portion is reduced and even reduced to zero, and the deformation portion shrinks under its own elasticity such that the three first slits are closed, thereby preventing the gas in the gas storage cavity from flowing out of the first vent hole (see direction of arrows of fig of IDEAR only move in one direction allowing air suction into the bag and not out due to the valve).

With respect to claim 5, IDEAR discloses an upper side of the bottom plate (see annotated fig of IDEAR device) is provided with a first peripheral side wall encircling the central cylinder (see annotated fig of IDEAR device), an upper end of the first peripheral side wall shrinking inward to form a stop edge (note the upper part of the bottom plate curves inward and folds under the gasbag); the collapsible gasbag is provided with a second peripheral side wall made from an elastic material (bag is collapsible elastic material), the second peripheral side wall being provided with a plurality of layers of outwardly convex folds (see annotated fig of IDEAR device); and the first peripheral side wall covers the lowermost fold of the second peripheral side wall, and the stop edge covers an upper side of the lowermost fold (see how the upper side of the

plate curves inward toward the bag and allows the bag to be inside the connector to stay connected to one another).

With respect to claim 7, IDEAR discloses a top wall of the collapsible gasbag (see annotated fig of IDEAR device) is connected to a handle (see annotated fig of IDEAR device) for holding (see use of device in video).

With respect to claim 8, IDEAR discloses four first slits (see annotated fig of IDEAR device) are provided, the four first slits being in the shape of a cross (four slits come together in the middle to form a cross).

With respect to claim 9, IDEAR discloses the connector is provided with a bottom plate (see annotated fig of IDEAR device), the bottom plate being provided with a peripheral cylinder (see annotated fig of IDEAR device) which is vertically through (see arrows through the inlet valve opening); the second check valve is a duckbill valve (see duckbill shape in annotated fig of IDEAR), the second check valve comprises a duckbill portion (see annotated fig of IDEAR device) and a second base portion (see annotated fig of IDEAR device) 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 (see annotated fig of IDEAR device; the hole is in the middle of 2nd check valve's base), and the second gas outlet end is a second slit (slit of duckbill portion) 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 (see bag connected to upper portion of connector and inlet area in annotated fig of IDEAR); the duckbill portion extends into the peripheral cylinder, and a lower end of the peripheral cylinder is in communication with the outside (see video of device at 19 seconds showing second check valves exposed to 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 (see direction of arrows in fig of IDEAR, second check valves only allow air movement out of the bag to the outside).

With respect to claim 10, IDEAR discloses the connector is an integrally formed member made from an elastic material (lightweight material formed of as one piece).

With respect to claim 11, IDEAR discloses the face mask, the connector and the collapsible gasbag are integral (see all pieces together in figure of IDEAR device).

With respect to claim 12, IDEAR discloses the collapsible gasbag is not provided with a vent hole which is in direct communication with the outside; note the air outlet valves are the only communication the gasbag has with the outside.

With respect to claim 13, IDEAR discloses a connector for a removal device (see annotated fig of IDEAR device), the connector comprising a bottom plate (see annotated fig of IDEAR device), and a first check valve (air inlet valve) and a second check valve (air outlet valve) which are arranged on the bottom plate (see annotated fig of IDEAR device), wherein the first check valve and the second check valve allow gas flow to pass in opposite directions (see opposite directions of air flow in fig of IDEAR device); and the connector is an integrally formed member made from an elastic material (all the pieces are connected to one another).

With respect to claim 14, IDEAR discloses the connector is provided with a plurality of second check valves (see two air outlet valves), the plurality of second check valves encircling the first check valve (two air outlet valves are around the one inlet valve).

With respect to claim 15, IDEAR discloses the bottom plate being provided with a central cylinder (see annotated fig of IDEAR device) which is vertically through (see arrows through air inlet); the first check valve is of a hollowed structure (see through hole of 1st check valve) made from an elastic material, and comprises a deformed portion (see annotated fig of IDEAR device) and a first base portion (see annotated fig of IDEAR device) which are connected to each other (see the two structures connected on the connector); the first gas outlet end is composed of at least three first slits (see annotated fig of IDEAR device) provided at a top end of the deformed portion; one ends, extending toward the center of the at least three first slits intersect at the same point (valve slits connect to forma cross shape), and the first gas inlet end is a first vent hole provided in the middle of the first base portion (see air inlet valve in the middle of the base portion in device figure).

With respect to claim 16, IDEAR discloses the second check valve is a duckbill valve (see duckbill shape in annotated fig of IDEAR), the second check valve comprises a duckbill portion (see annotated fig of IDEAR device) and a second base portion (see annotated fig of IDEAR device) which are connected to each other, a second gas outlet end (see annotated fig of IDEAR device) and a second gas inlet end of the second check valve (see annotated fig of IDEAR device) are provided in the duckbill portion and the second base portion (the inlet and outlet are provided on either side of the duckbill valve) respectively; and the second gas inlet end is a second vent hole provided in the middle of the second base portion (see annotated fig of IDEAR device; the hole is in the middle of 2nd check valve's base), and the second gas outlet end

is a second slit (slit of duckbill portion) provided in the duckbill portion and the duckbill portion and the deformed portion separately face two opposite sides of the bottom plate (the duckbill portion is on the outlet side where the deformed portion is on the inlet side).

With respect to claim 17, IDEAR discloses a removal device for removing an obstruction in a respiratory tract (choking rescue device), the removal device comprising a collapsible gasbag (see annotated fig of IDEAR device), the connector (see annotated fig of IDEAR device) and a face mask (see annotated fig of IDEAR device) which are sequentially connected (see the device is one piece when all together), wherein the collapsible gasbag is internally provided with a gas storage cavity (inner space of gas bag), the top of the collapsible gasbag is sealed (bag is closed with no openings on top), and the bottom of the collapsible gasbag is provided with an opening in communication with the gas storage cavity (must be in communication to create the suction to remove obstruction, see video); an upper side of the connector is hermetically connected to the opening, and the connector is provided with a first check valve (air inlet valve) and a second check valve (air outlet valve); a first gas outlet end of the first check valve (see annotated fig of IDEAR device) is in communication with the gas storage cavity (see how the connector top is connected to the gasbag), a second gas inlet end of the second check valve (see annotated fig of IDEAR device) is in communication with the gas storage cavity (see how the top of the connector is connected to the gasbag), and a second gas outlet end of the second check valve (see annotated fig of IDEAR device) is in communication with the outside (see video of device at 19 seconds showing second check valves exposed to the outside); and an upper side of the face mask is hermetically connected to a first gas inlet end of the first check valve (see video of device at 20 seconds showing first check valve is connected to the face mask in the middle of

the connector), and a lower side of the face mask is provided with a flexible annular pad (see annotated fig of IDEAR device) attached to a face (see annotated fig of IDEAR device).

Claim Rejections - 35 USC § 103

7. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

8. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, 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. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 4 is/are rejected under 35 U.S.C. 103 as being unpatentable over IDEAR as applied to claim 3 above, and further in view of Lih (2015/0190158).

With respect to claim 4, IDEAR discloses the face mask but is silent regarding the mask having the upper side of the face mask is provided with a connecting cylinder which is vertically through in the middle.

However, Lih teaches a respiratory device (102, fig 1) with a mask (110, fig 1) having the connecting cylinder (118, fig 3) being inserted into the inner side of the lower end of the central cylinder from bottom to top, and an outer side of the connecting cylinder being hermetically connected to the inner side of the central cylinder (see [0034], lines 1-3).

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have modified the face mask of IDEAR to include a connecting cylinder as taught by Lih so as to provide an air tight seal with the

connector to ensure the parts stay together and properly create a suction for obstruction removal.

10. Claim 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over IDEAR as applied to claim 5 above, and further in view of Koledin (2011/0197892).

With respect to claim 6, IDEAR discloses all the elements as claimed above but lacks a plurality of reinforcement strips.

However, Koledin teaches a respiratory device (fig 2) with a plurality of reinforcement strips (see strips coming out of cylinder 38 in fig 1) are arranged on the upper side of a plate (see connection of strips on flat part in fig 1), ends of each reinforcement strip being separately connected to an outer side of a central cylinder (see connection to cylinder 38 in fig 1).

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have modified the central cylinder and first peripheral wall of IDEAR to include reinforcement strips as taught by Koledin so as to provide additional support to the central cylinder to avoid breakage or dislodgement.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pool (6145135) is cited to show a manual collapsible plunder; Richards (3316903), Tarrats (4971053), Flynn (7219668), Winiarski (2009/0228018), Baek (2018/0099108), Carver (10675393), and Carver (2020/0306420) are cited to show additional manual resuscitation devices.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KELSEY E BALLER whose telephone number is (571)272-8153. The examiner can normally be reached Monday - Friday 8 AM - 4 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KELSEY E BALLER/
Examiner, Art Unit 3785

/JUSTINE R YU/
Supervisory Patent Examiner, Art Unit 3785

Notice of References Cited	Application/Control No. 17/393,249		Applicant(s)/Patent Under Reexamination HE, Liguí	
	Examiner KELSEY E BALLER		Art Unit 3785	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-3316903-A	05-1967	RICHARDS ALBERT M	A61M16/0084	128/205.16
*	B	US-4971053-A	11-1990	Tarrats; Edward	A61B17/50	128/206.28
*	C	US-6145135-A	11-2000	Pool; Dan B.	E03C1/308	4/255.09
*	D	US-7219668-B2	05-2007	Flynn; Stephen	A61M16/0084	128/205.13
*	E	US-20090228018-A1	09-2009	Winiarski; Kevin	A61M1/804	606/106
*	F	US-20180099108-A1	04-2018	BAEK; Suk Hyun	A61M16/0063	1/1
*	G	US-10675393-B1	06-2020	Carver; Alan R	A61B17/24	1/1
*	H	US-20200306420-A1	10-2020	Carver; Alan R.	A61M1/962	1/1
*	I	US-20110197892-A1	08-2011	Koledin; Michael	A61M16/0866	128/205.24
*	J	US-20150190158-A1	07-2015	LIH; Arthur	A61M16/0075	606/106
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	IDEAR, 3Packs Anti Choking Device for Family, Effective Choking Rescue Device, Easy-to-Use & Portable Suction Choking Kit for Adult & Kids, Dislodge Obstructor in Airway, Essential First Aid Kit for Homes, Amazon (2021) (Year: 2021)
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Search Notes</i> 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Ligu
	Examiner KELSEY E BALLER	Art Unit 3785

CPC - Searched*		
Symbol	Date	Examiner
a61m16/0003,0057,0063,0075,0084,08,201,206,208-209; A61M1/00,67	02/24/2022	KEB
A61B17/24,50	02/24/2022	KEB

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
128	200,205	02/24/2022	KEB

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
inventor search	02/24/2022	KEB
Consulted Rachel Sippel (suggested a61m16/0003,0057,0063,0075,0084,08,201,206,208-209 and class 604)	02/24/2022	KEB
Consulted Brad Philips (AU 3799 suggested A61B17/24,50A1M1/6)	02/24/2022	KEB
text search (see printout history)	02/24/2022	KEB

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/KELSEY E BALLER/ Examiner, Art Unit 3785	
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<i>Search Notes</i> 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Liguí
	Examiner KELSEY E BALLER	Art Unit 3785

/KELSEY E BALLER/ Examiner, Art Unit 3785	
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Bibliographic Data

Application No: 17/393,249

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged: /KELSEY E BALLER/

Examiner's Signature

Initials

Title:

REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN
RESPIRATORY TRACT AND CONNECTOR

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/03/2021	128	3785	20942.0019US01
RULE			

APPLICANTS

DCSTAR INC, New York, NY,

INVENTORS

Ligui HE, New York, NY, UNITED STATES

CONTINUING DATA none /K.E.B./

FOREIGN APPLICATIONS none /K.E.B./

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/30/2021

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

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Minneapolis, MN 55402-1683

UNITED STATES

FILING FEE RECEIVED

\$3,000

P000075

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	5	((("HE") near3 ("Ligui"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/14 01:22 PM
L2	32152	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 01:28 PM
L3	53	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and heimlich	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 01:31 PM
L4	13	("20030028158" "3316903" "3939830" "4768237" "4934360" "4971053" "5313938" "5609149" "5782837" "6478770" "7351245" "D613468").PN. OR ("10052115").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 01:33 PM
L5	6	("20050085799" "20090175747" "20120221010" "3939830" "4971053" "5338166").PN. OR ("10675393").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 01:41 PM
L6	314	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (collaps\$4 squeez\$4 fold\$4 retractable) near (bag cavity sack ambu)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 02:02 PM
L7	4	((("DCSTAR") near3 ("INC"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/02/14 02:34 PM
L8	36	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 02:39 PM

L9	1006	A61M2205/3337).cpc. and (bag cavity sack ambu) with ((multiple two many few plurality) near (valve check duckbill)) (A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (multiple two many few plurality) near (valve check duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:36 PM
L10	195	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (multiple two many few plurality) near ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:37 PM
L11	1529	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:46 PM
L12	1346	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 03:47 PM
L13	1759	128/200.24.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 04:20 PM
L14	2075	128/205.24.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:07 AM
L15	582	128/205.24.ccls. and (mask face) with (bag cavity sack supply container)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:09 AM
L16	414	128/207.12.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:11 AM

L17	15317	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/16 08:55 AM
L18	3723	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (mask face) with (bag cavity sack supply container)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 08:55 AM
L19	4505	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (bag cavity sack supply container) with (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 09:17 AM
L20	362	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (mask face) with (bag cavity sack supply container) near (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 09:18 AM
L26	280	L20	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/16 11:23 AM
L27	374	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (mask face) with (bag cavity sack supply container) near (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 11:50 AM
L28	4	("6145135").pn.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/24 11:05 AM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 17/393,249		Filing Date 08/03/2021		☐ To be Mailed		
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO										
APPLICATION AS FILED - PART I										
		(Column 1)	(Column 2)							
FOR		NUMBER FILED	NUMBER EXTRA	RATE (\$)		FEE (\$)				
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A	N/A						
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A	N/A						
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A	N/A						
TOTAL CLAIMS (37 CFR 1.16(j))		minus 20 =	*	x \$50 =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*	x \$240 =						
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL						
APPLICATION AS AMENDED - PART II										
		(Column 1)	(Column 2)	(Column 3)						
AMENDMENT	05/19/2022	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(j))	* 17	Minus	** 20	= 0	x \$50 =		0		
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	x \$240 =		0		
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
				TOTAL ADD'L FEE		0				
AMENDMENT		(Column 1)	(Column 2)	(Column 3)						
		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(j))	*	Minus	**	=	x \$0 =				
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =				
	☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
				TOTAL ADD'L FEE						
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.				LIE						
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".				/ANGELONA D JONES/						
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".										
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship: HE Examiner: BALLER, KELSEY E.
Serial No.: 17/393249 Group Art Unit: 3785
Filed: August 3, 2021 Docket No.: 20942.0019US01
Title: REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY
TRACT AND CONNECTOR

CERTIFICATE OF TRANSMISSION

I hereby certify that this paper is being transmitted by EFS Web to the United States Patent & Trademark Office on May 19, 2022.

By: /Jessica A. Sun/
Name: Jessica A. Sun

AMENDMENT AND RESPONSE

Mail Stop: AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Commissioner:

In response to the Non-Final Office Action issued March 2, 2022, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Original) 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 attached to a face.

2. (Currently Amended) The removal device for removing ~~[[an]]~~ the obstruction in ~~[[a]]~~ the respiratory tract according to claim 1, wherein the connector is provided with a plurality of second check valves, the plurality of second check valves encircling the first check valve.

3. (Currently Amended) The removal device for removing ~~[[an]]~~ the obstruction in ~~[[a]]~~ the respiratory tract according to claim 1, wherein the connector is provided with a bottom plate, the bottom plate being provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure made from an elastic material, and comprises a deformed portion and a first base portion which are connected to each other; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion; one ends, extending toward the center, of the at least three first slits intersect at the same point, and the first gas inlet end is a

first vent hole provided in the middle of the first base portion; the first base portion extends into the central cylinder, and an outer side of the first base portion is hermetically connected to an inner side of the central cylinder; a lower end of the central cylinder is hermetically connected to an upper side of the face mask; the deformation portion is exposed out of the central cylinder and extends into the gas storage cavity; when gas flows into the deformation portion through the first vent hole, pressure in the deformation portion gradually increases such that the deformation portion is deformed by expansion, so that the at least three first slits are opened, thereby allowing the gas on the side of the first vent hole to flow into the gas storage cavity; and when the gas flowing into the deformation portion through the first vent hole is reduced or disappears, pressure in the deformation portion is reduced and even reduced to zero, and the deformation portion shrinks under its own elasticity such that the three first slits are closed, thereby preventing the gas in the gas storage cavity from flowing out of the first vent hole.

4. (Currently Amended) The removal device for removing ~~[[an]]~~ the obstruction in ~~[[a]]~~ the respiratory tract according to claim 3, wherein the upper side of the face mask is provided with a connecting cylinder which is vertically through in the middle, the connecting cylinder being inserted into the inner side of the lower end of the central cylinder from bottom to top, and an outer side of the connecting cylinder being hermetically connected to the inner side of the central cylinder.

5. (Currently Amended) The removal device for removing ~~[[an]]~~ the obstruction in ~~[[a]]~~ the respiratory tract according to claim 3, wherein an upper side of the bottom plate is provided with a first peripheral side wall encircling the central cylinder, an upper end of the first peripheral side wall shrinking inward to form a stop edge; the collapsible gasbag is provided with a second peripheral side wall made from an elastic material, the second peripheral side wall being provided with a plurality of layers of outwardly convex folds; and the first peripheral side wall covers the lowermost fold of the second peripheral side wall, and the stop edge covers an upper side of the lowermost fold.

6. (Currently Amended) The removal device for removing ~~[[an]]~~ the obstruction in ~~[[a]]~~ the respiratory tract according to claim 5, wherein a plurality of reinforcement strips are arranged on

the upper side of the bottom plate, two opposite ends of each reinforcement strip being separately connected to the inner side of the first peripheral side wall and the outer side of the central cylinder.

7. (Currently Amended) The removal device for removing ~~[[an]] the~~ obstruction in ~~[[a]] the~~ respiratory tract according to claim 1, wherein a top wall of the collapsible gasbag is connected to a handle for holding.

8. (Currently Amended) The removal device for removing ~~[[an]] the~~ obstruction in ~~[[a]] the~~ respiratory tract according to claim 3, wherein four first slits are provided, the four first slits being in the shape of a cross.

9. (Currently Amended) The removal device for removing ~~[[an]] the~~ obstruction in ~~[[a]] the~~ respiratory tract according to claim 1, 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.

10. (Currently Amended) The removal device for removing ~~[[an]]~~ the obstruction in ~~[[a]]~~ the respiratory tract according to claim 1, wherein the connector is an integrally formed member made from an elastic material.
11. (Currently Amended) The removal device for removing ~~[[an]]~~ the obstruction in ~~[[a]]~~ the respiratory tract according to claim 1, wherein the face mask, the connector and the collapsible gasbag are integral.
12. (Currently Amended) The removal device for removing ~~[[an]]~~ the obstruction in ~~[[a]]~~ the respiratory tract according to claim 1, wherein the collapsible gasbag is not provided with a vent hole which is in direct communication with the outside.
13. (Original) 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.
14. (Original) The connector according to claim 13, wherein the connector is provided with one first check valve and a plurality of second check valves, the plurality of second check valves encircling the first check valve.
15. (Original) The connector according to claim 14, wherein the bottom plate is provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure and comprises a deformed portion and a first base portion which are connected to each other, and a first gas outlet end and a second vent hole of the first check valve are provided in the deformed portion and the first base portion respectively; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion, one ends, extending toward the center, of the at least three first slits intersecting at the same point; and the first gas inlet end is a first vent hole provided in the middle of the first base portion.

16. (Original) The connector according to claim 15, wherein 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, and a second gas outlet end and a second gas inlet end of the second check valve are provided in the duckbill portion and the second base portion respectively; 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; and the duckbill portion and the deformed portion separately face two opposite sides of the bottom plate.

17. (Previously Presented) The connector according to claim 15, wherein the removal device is configured to remove an obstruction in a respiratory tract, the removal device comprising a collapsible gasbag, the 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; the 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 the first gas inlet end of the first check valve, and a lower side of the face mask is provided with a flexible annular pad attached to a face.

REMARKS

Applicant respectfully requests favorable reconsideration of this application in view of the above amendments and the following remarks.

Claims 2-12 are amended to correct informalities.

No new matter has been added.

Claims 1-17 are pending.

Objection to the Claims

Claims 2-12 are objected to due to informalities. Applicant has revised the claims in accordance with the objection. Applicant respectfully requests withdrawal of the objection.

Claim Rejections - 35 U.S.C. § 102

Claims 1-3, 5, and 7-17 are rejected under 35 U.S.C. 102(a)(1) based upon a public use or sale or other public availability of the invention. IDEAR anti-choke device, herein referred to as IDEAR. Applicant respectfully traverses the rejection.

Specifically, the rejection should be withdrawn since IDEAR is disqualified as prior art against the present application under 35 U.S.C. 102(b)(1)(A), which provides that a disclosure which would otherwise qualify as prior art under AIA 35 U.S.C. 102(a)(1) is not prior art if the disclosure was made: (1) one year or less before the effective filing date of the claimed invention; and (2) by the inventor or a joint inventor, or by another who obtained the subject matter directly or indirectly from the inventor or joint inventor.

The present application was filed August 3, 2021. As such, the present application has an effective US filing date of August 3, 2021.

Applicant submits a declaration by Ligui He (“He Declaration”) pursuant to 37 C.F.R. 1.130(a) that states that the common subject matter of IDEAR is attributable to the inventor of the present application, specifically, the removal device shown in the IDEAR publication. See He Declaration, para. 3. As such, since the subject matter of IDEAR originated from the inventor of the present application and was publicly disclosed less than one year before the effective filing date of the present application, IDEAR is disqualified as prior art.

Thus, anticipation of claims 1-3, 5, and 7-17 cannot be established in view of the cited art. Applicant is not conceding the correctness of the reasoning of the rejections. Applicant respectfully requests withdrawal of the rejection.

Claim Rejections - 35 U.S.C. § 103

Claim 4 is rejected under 35 U.S.C. 103 as being unpatentable over IDEAR, as applied to claim 3 above, and further in view of Lih. (U.S. Patent Application Publication No. 2015/0190158) (“Lih”). Applicant respectfully traverses the rejection.

Claim 4 depends on claim 1 and is allowable over IDEAR for at least the same reasons as claim 1, as discussed above. Lih fails to cure the deficiencies of IDEAR with respect to claim 1. Thus, claim 4 is allowable over IDEAR and Lih. Applicant does not concede the correctness of the rejection of claim 4. Favorable consideration and withdrawal of this rejection is requested.

Claim 6 is rejected under 35 U.S.C. 103 as being unpatentable over IDEAR, as applied to claim 5 above, and further in view of Koledin (U.S. Patent Application Publication No. 2011/0197892) (“Koledin”). Applicant respectfully traverses the rejection.

Claim 6 depends on claim 1 and is allowable over IDEAR for at least the same reasons as claim 1, as discussed above. Koledin fails to cure the deficiencies of IDEAR with respect to claim 1. Thus, claim 6 is allowable over IDEAR and Koledin. Applicant does not concede the correctness of the rejection of claim 6. Favorable consideration and withdrawal of this rejection is requested.

17/393249

Response to Office Action dated 3/2/2022

In view of the above, Applicant respectfully requests favorable reconsideration in the form of a Notice of Allowance. If any questions arise regarding this communication, the Examiner is invited to contact Applicant's representative listed below. Please charge any additional fees or credit any overpayment to Deposit Account No. 50-3478.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
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Dated: May 19, 2022

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Electronic Acknowledgement Receipt	
EFS ID:	45757537
Application Number:	17393249
International Application Number:	
Confirmation Number:	4173
Title of Invention:	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR
First Named Inventor/Applicant Name:	Ligui HE
Customer Number:	52835
Filer:	Rong Yang/Jessica Sun
Filer Authorized By:	Rong Yang
Attorney Docket Number:	20942.0019US01
Receipt Date:	19-MAY-2022
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Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Affidavit-Rule 130(b)-America Invents Act (First Inventor to File) ONLY	130_dec.pdf	475855	no	1
			2e34b7f3f5be6aa51e122575e5cac457b616f35f		

Warnings:

Information:					
2		Response_0019.pdf	106681	yes	9
			5bca2e4ae983916ef7327b23850fca01577a71bf		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Request for Reconsideration-After Non-Final Rejection		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	9	
Warnings:					
Information:					
Total Files Size (in bytes):			582536		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship:	Ligui HE	Examiner:	BALLER, KELSEY E.
Serial No.:	17/393249	Group Art Unit:	3785
Filed:	August 3, 2021	Docket No.:	20942.0019US01
Title:	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

DECLARATION UNDER 37 C.F.R. 1.130

HON. COMMISSIONER OF U.S. PATENT AND TRADEMARK OFFICE

SIR,

I, Ligui He, hereby declare as follows:

1. I am the inventor of the above-identified application, which was filed August 3, 2021.
2. I have reviewed the Non-Final Office Action dated March 2, 2022 in the above-identified application and understand that the claims are rejected under 35 U.S.C. 102 as being anticipated over IDEAR.
3. I note that the disclosure of the removal device of IDEAR is based on the subject matter of the present application and is not prior art. That is, IDEAR is based on the conception or development of the subject matter disclosed and claimed in the present application which are attributable to me.
4. I declare that all statements made herein of my own knowledge are true and that all statement made on information and belief are believed to be true; and further that these statement were made with the knowledge that wilful false statements are punishable under the penalty of perjury of the laws of the United States of America, and that such wilful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 5/16, 2022.

Signature:

Ligui HE
Ligui HE



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173

52835	7590	06/08/2022
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.		
45 South Seventh Street		
Suite 2700		
Minneapolis, MN 55402-1683		

EXAMINER	
BALLER, KELSEY E	

ART UNIT	PAPER NUMBER
3785	

NOTIFICATION DATE	DELIVERY MODE
06/08/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOMail@hsmll.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Amendment

2. This office action is in response to the preliminary amendment filed 8/3/21. Claim 17 has been amended, no new claims have been added, and no claims have been cancelled. Thus claims 1-17 are presently pending in this application.

Claim Rejections - 35 USC § 103

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

4. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, 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. Patentability shall not be negated by the manner in which the invention was made.

5. Claim(s) 1, 7, and 10-12 is/are rejected under 35 U.S.C. 103 as being unpatentable over Lih (2015/0190158) in view of Tarrats (4,971,053).

With respect to claim 1, Lih discloses a removal device for removing an obstruction in a respiratory tract (Abstract, lines 1-2), the removal device comprising a collapsible gasbag (bellow; 102, fig 1) a connector (118, fig 3) and a face mask (110, fig 3) which are sequentially connected (see the device is one piece when all together), wherein the collapsible gasbag is

internally provided with a gas storage cavity (inner space of bellow), the top of the collapsible gasbag is sealed (bag is closed with no openings on top), and the bottom of the collapsible gasbag is provided with an opening in communication with the gas storage cavity (116, fig 2); an upper side of the connector is hermetically connected to the opening (see [0034], lines 1-6), and a check valve (108, fig 3); a gas inlet end of the second check valve (side of the valve attached to the bellow) is in communication with the gas storage cavity and a gas outlet end of the second check valve is in communication with the outside (see [0039], lines 3-6); and a lower side of the face mask is provided with a flexible annular pad (seal; 112, fig 3) attached to a face (see [0033], lines 1-5), but lacks a first check valve on the connector.

However, Tarrats teaches an apparatus to remove an obstruction (10, fig 1; Abstract lines 1-2) with a connector (15, fig 1) provided with a first check valve (25a, fig 1; see col. 3, lines 36-38) a first gas outlet end of the first check valve is in communication with the gas storage cavity and an upper side of the face mask is hermetically connected to a first gas inlet end of the first check valve (see location of the check valve in fig 1; also note the valve prevents air into the victims mouth therefore the valve inlet is on the face mask side and the outlet is on the bellow side).

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have modified the connector of Lih to include a first check valve as taught by Tarrats so as to avoid pushing the obstruction farther into the user's airway during use.

Further, the second check valve is not located on the connector. However, Lih discloses "While the relief valve 108 is shown on a top surface of the bellows 404, the illustration is a non-limiting example. Thus, the relief valve 108 may be positioned at any suitable location on the

bellows assembly 102, such as the base 114 of the bellows assembly 102, top of the handle 106, etc.” [0041]. Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have relocated the second check valve to be on the connector, since the valve would still perform the function of relieving the air in the bellows.

With respect to claim 7, the modified Lih shows a top wall of the collapsible gasbag (domed portion of 102 in fig 3) is connected to a handle (106, fig 3) for holding.

With respect to claim 10, the modified Lih shows the connector is an integrally formed member made from an elastic material (collapsible bag making the device elastic).

With respect to claim 11, the modified Lih shows the face mask, the connector and the collapsible gasbag are integral (see all pieces together in figure).

With respect to claim 12, the modified Lih shows the collapsible gasbag is not provided with a vent hole which is in direct communication with the outside; note the relief valve (108, fig 3 of Lih) is the only communication the gasbag has with the outside.

6. Claim(s) 2 is/are rejected under 35 U.S.C. 103 as being unpatentable over Lih in view of Tarrats as applied to claim 1 above, and further in view of Rozinsky (7,351,245).

With respect to claim 2, the modified Lih shows the connector is provided with a second check valves (see claim 1 above), but lacks a plurality of second check valves.

However, Rozinsky teaches an apparatus for removing an obstruction (10, fig 1) with a plurality of check valves (36, fig 2; two exit valves 36 in fig 2).

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have modified the connector of the modified Lih to include multiple second check valves in an encircling manner as taught by Rozinsky so as to evenly remove air from the cavity when the bellow is depressed.

Allowable Subject Matter

7. Claims 13-17 allowed.
8. Claims 3-6 and 8-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments, see pg. 7, filed 5/19/22, with respect to the rejection(s) of claim(s) 1-3, 5, 7-17 under 35 USC 102(a)(1) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new art references under 35 USC 103.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KELSEY E BALLER whose telephone number is (571)272-8153. The examiner can normally be reached Monday - Friday 8 AM - 4 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KELSEY E BALLER/
Examiner, Art Unit 3785

/JUSTINE R YU/
Supervisory Patent Examiner, Art Unit 3785

<i>Notice of References Cited</i>	Application/Control No. 17/393,249		Applicant(s)/Patent Under Reexamination HE, Ligui	
	Examiner KELSEY E BALLER		Art Unit 3785	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-7351245-B2	04-2008	Rozinsky; Bernice Joy	A61M16/0463	606/106
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Search Notes</i> 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Ligu
	Examiner KELSEY E BALLER	Art Unit 3785

CPC - Searched*		
Symbol	Date	Examiner
a61m16/0003,0057,0063,0075,0084,08,201,206,208-209; A61M1/00,67 A61M2205/075 A61M3/0262	02/24/2022	KEB
A61B17/24,50	02/24/2022	KEB
updated above search	06/02/2022	KEB

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
128	200,205	02/24/2022	KEB

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
inventor search	02/24/2022	KEB
Consulted Rachel Sippel (suggested a61m16/0003,0057,0063,0075,0084,08,201,206,208-209 and class 604)	02/24/2022	KEB
Consulted Brad Philips (AU 3799 suggested A61B17/24,50A1M1/6)	02/24/2022	KEB
text search (see printout history)	02/24/2022	KEB
consulted class 604 (Laura Bouchelle AU3783 suggested A61M2205/075 and 3/0262)	06/02/2022	KEB
updated above search	06/02/2022	KEB

/KELSEY E BALLER/ Examiner, Art Unit 3785	
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<i>Search Notes</i> 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Liguí
	Examiner KELSEY E BALLER	Art Unit 3785

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/KELSEY E BALLER/ Examiner, Art Unit 3785	
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PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	5	((("HE") near3 ("Ligui"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/14 01:22 PM
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L3	53	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and heimlich	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 01:31 PM
L4	13	("20030028158" "3316903" "3939830" "4768237" "4934360" "4971053" "5313938" "5609149" "5782837" "6478770" "7351245" "D613468").PN. OR ("10052115").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 01:33 PM
L5	6	("20050085799" "20090175747" "20120221010" "3939830" "4971053" "5338166").PN. OR ("10675393").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 01:41 PM
L6	314	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (collaps\$4 squeez\$4 fold\$4 retractable) near (bag cavity sack ambu)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 02:02 PM
L7	4	((("DCSTAR") near3 ("INC"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/02/14 02:34 PM
L8	36	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 02:39 PM

L9	1006	A61M2205/3337).cpc. and (bag cavity sack ambu) with ((multiple two many few plurality) near (valve check duckbill)) (A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (multiple two many few plurality) near (valve check duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:36 PM
L10	195	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (multiple two many few plurality) near ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:37 PM
L11	1529	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:46 PM
L12	1346	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 03:47 PM
L13	1759	128/200.24.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 04:20 PM
L14	2075	128/205.24.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:07 AM
L15	582	128/205.24.ccls. and (mask face) with (bag cavity sack supply container)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:09 AM
L16	414	128/207.12.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:11 AM

L17	15317	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/16 08:55 AM
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L19	4505	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (bag cavity sack supply container) with (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 09:17 AM
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L26	280	L20	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/16 11:23 AM
L27	374	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (mask face) with (bag cavity sack supply container) near (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 11:50 AM
L28	4	("6145135").pn.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/24 11:05 AM
L29	35	(Artificial Intelligence) More Like: US-20130312757-A1 Text: (US-9333318-B2 OR EP-2996753-B1 OR US-10272226-B2 OR US-10307562-B2 OR US-20190224440-A1 OR US-11090458-B2 OR US-9216265-B2 OR EP-3273856-A4 OR EP-2384212-B1 OR US-10420909-B2 OR US-20140083419-A1 OR US-20160022948- A1 OR US- 20190358422-A1 OR US-20160121072-A1 OR BR-PI0918320-A2	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/25 02:28 PM

L30	43	OR EP-3797683-A1 OR WO-2009089807-A1 OR US-20200360641-A1 OR US-20160158477-A1 OR CA-2968982-A1).did. (Artificial Intelligence) More Like: US-4971053-A Text: (US-5088486-A OR US-20090228018-A1 OR WO-2011084133-A1 OR US-20120221010-A1 OR US-8454624-B2 OR US-5609149-A OR US-5255672-A OR US-4934360-A OR DE-102019120252-A1 OR AU-2019204561-B2 OR DE-4329377-A1 OR US-3939830-A OR WO-2019008139-A1 OR DE-102017115283-A1 OR US-20210251658-A1 OR US-4662367-A OR CA-2905092-A1 OR US-20110152794-A1 OR AU-2014233492-B2 OR CN-102309812-B).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/25 02:33 PM
L31	38	(Artificial Intelligence) More Like: US-4934360-A Text: (US-5484391-A OR WO-2008070794-A9 OR US-5571074-A OR US-5582580-A OR US-5628305-A OR US-20020139369-A1 OR US-7121278-B2 OR CN-109513087-A OR CN-109513087-B OR US-4898167-A OR WO-2007073211-A1 OR EP-0537225-A1 OR US-5609149-A OR NZ-544257-A OR EP-0537225-B1 OR US-5313938-A OR US-5345929-A OR US-2737177-A OR CN-107510873-A OR JP-H0596007-A).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/25 02:35 PM
L32	34	("3106204" "3216413" "4774941").pn. OR	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/05/25 02:35 PM

L33	26	("4934360").urpn. AND (PGPB USPT USOC).dbnm. ("2428451" "3158152" "3185147").pn. OR ("3939830").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/05/25 02:59 PM
L34	37	(Artificial Intelligence) More Like: US-10052115-B2 Text: (WO-2011084133-A1 OR US-20150190158-A1 OR IL-283723-D0 OR US-5609149-A OR WO-2021252376-A1 OR WO-2015167709-A1 OR US-20120221010-A1 OR US-8454624-B2 OR WO-2007073211-A1 OR US-4971053-A OR US-5313938-A OR DE-102017115283-A1 OR NZ-544257-A OR WO-2019008139-A1 OR US-3939830-A OR CN-216366227-U OR CN-113827827-A OR US-4934360-A OR TW-202146065-A OR CA-2296580-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/25 03:01 PM
L35	24	("1371702" "1848234" "2453475" "2995131" "3939830" "4141355" "4836198").pn. OR ("4971053").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/05/26 02:46 PM
L36	55	("2428451" "RE24193" "3939830" "4518258" "4527897" "4662367" "4677289" "4678338" "4790818" "4834541" "4838697" "4878756" "4886366" "4917500" "4934360" "4971053" "5049985" "5073345" "5083868" "5091642" "5150174" "5609149" "5628305" "5680220" "5754283" "5769072" "5782837" "5844680" "5949549" "6020583" "6040902" "6094272")	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/05/26 02:50 PM

		"6157454" "6262804" "6272440" "6301004" "6305818" "6462819" "6535287" "6583880" "6603551" "6614530" "6674530" "6707553" "6741351" "20020036772" "20020099387" "20030028158" "20030030808" "20030071998").pn. OR ("7351245").urpn. AND (PGPB USPT USOC).dbnm.					
L37	301	a61m1/0058,77,80,92.c pc. AND (mask face) WITH (bag cavity sack supply container)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 03:53 PM
L38	121	604/27-35.ccls. AND (bag bladder container) WITH (airway throat mouth obstruct\$3)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 03:57 PM
L39	472	a61m1/0058,77,80,92.c pc. AND (compress\$4 squeez\$3 depressable) WITH (bag cavity sack supply container bladder)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:02 PM
L40	10	a61m1/0058,77,80,92.c pc. AND (compress\$4 squeez\$3 depressable) WITH (bag cavity sack supply container bladder) SAME (mouth throat airway nose)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:11 PM
L41	275	a61m2205/075.cpc. AND (bag cavity sack supply container bladder) SAME (mouth throat airway nose)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:17 PM
L42	2	a61m2205/075.cpc. AND (bag cavity sack supply container bladder) SAME (mouth throat airway nose) WITH (obstruction blockage)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:18 PM
L43	236	a61m2205/075.cpc. AND (bag cavity sack supply container bladder) SAME (mouth throat airway)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:18 PM
L44	314	a61m2205/075.cpc. AND (bag cavity sack	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	ON	2022/06/01 12:36 PM

L45	6961	supply container bladder) SAME (air airway fluid) WITH (valve duckbill) (A61M1/\$).cpc. AND (manual bag compress\$3) WITH (valve duckbill)	JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 01:33 PM
L46	5732	(A61M1/\$).cpc. AND (manual bag compress\$3) WITH (valve duckbill)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:34 PM
L47	933	(A61M1/\$).cpc. AND (manual bag compress\$3) WITH (valve duckbill) WITH (suction remove negative)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:34 PM
L48	19	(A61M1/\$).cpc. AND (manual bag compress\$3) WITH (valve duckbill) WITH (suction remove negative) SAME (mouth nasal throat)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:35 PM
L49	13	("3316903" "3939830" "4768237" "4934360" "4971053" "5313938" "5609149" "5782837" "6478770" "7351245" "D613468" "20030028158").pn. OR ("10052115").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:35 PM
L50	0	(A61M1/\$).cpc. AND (manual AND compress\$3) WITH (valve duckbill) WITH (suction remove negative) SAME (mouth nasal throat)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:36 PM
L51	18	(A61M1/\$).cpc. AND (manual AND compress\$3) WITH (valve duckbill) WITH (suction remove negative)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:36 PM
L52	6884	(A61M1/\$).cpc. AND (valve duckbill) WITH (suction remove negative)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:37 PM
L53	140	(A61M1/\$).cpc. AND (valve duckbill) WITH (suction remove	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:37 PM

L54	2	negative) SAME (airway airflow) (A61M1/00 OR A61B17/24 OR A61B17/50 OR A61M1/67 OR A61M16/00 OR A61M16/20 OR A61M2205/3337).cpc. AND (mask face mouth airway) WITH (multiple many plurality two) near3 ((relief exhaust check) ADJ valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 02:11 PM
L55	46	(A61M).cpcl. AND (mask face mouth airway) WITH (multiple many plurality two) near3 ((relief exhaust check) ADJ valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 02:12 PM
L56	3620	(A61M).cpcl. AND (multiple many plurality two) WITH ((relief exhaust check) ADJ valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 02:12 PM
L57	3114	(A61M).cpcl. AND (multiple many plurality two) WITH ((relief exhaust check) ADJ valve)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:12 PM
L58	551	(A61M).cpcl. AND (multiple many plurality two) WITH ((relief exhaust) ADJ valve)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:13 PM
L59	13	("3316903" "3939830" "4768237" "4934360" "4971053" "5313938" "5609149" "5782837" "6478770" "7351245" "D613468" "20030028158").pn. OR ("10052115").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:17 PM
L60	34	(Artificial Intelligence) More Like: US-10052115-B2 Text: (WO-2011084133-A1 OR US-20150190158-A1 OR IL-283723-D0 OR US-5609149-A OR WO-2021252376-A1 OR WO-2015167709-A1 OR US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK,	OR	ON	ON	2022/06/01 02:18 PM

		20120221010-A1 OR US-8454624-B2 OR CN-215606163-U OR US-4971053-A OR DE- 102017115283-A1 OR WO-2019008139-A1 OR US-3939830-A OR CN-216366227-U OR CN-113827827-A OR TW-202146065-A OR AU-604028-B2 OR CA- 2296580-A1 OR KR- 101245521-B1 OR EP- 0994738-A1).did.	TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L61	31	(A61M).cpcl. AND (multiple many plurality two) WITH ((relief exhaust) ADJ valve) WITH mask	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:20 PM
L62	41	"anti choke"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:22 PM
L63	29942	"choking"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:23 PM
L64	910	(A61M).cpcl. AND choking	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:23 PM
L65	54	(A61M).cpcl. AND choking WITH valve	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:23 PM
L66	35	(Artificial Intelligence) More Like: US-7351245-B2 Text: (CN-105682698-B OR CN-105682698-A OR WO-2015051018-A2 OR EP-3052158-A2 OR US-20150094674-A1 OR US-10105472-B2 OR US-20060064111- A1 OR EP-0949499-B1 OR JP-2000055735-A OR DE-69811053-T2 OR AU-2001231280-B2 OR EP-1257795-A1 OR US-6369895-B1 OR BR-112016007156-A2 OR EP-3052158-B1 OR US-20090025717-A1 OR JP-H05212105-A OR US-8181651-B2 OR US-10675393-B1 OR EP-3639865-A2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 02:25 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

Bibliographic Data

Application No: 17/393,249

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged: /KELSEY E BALLER/

Examiner's Signature

Initials

Title:

REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN
RESPIRATORY TRACT AND CONNECTOR

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/03/2021	128	3785	20942.0019US01
RULE			

APPLICANTS

DCSTAR INC, New York, NY,

INVENTORS

Ligui HE, New York, NY, UNITED STATES

CONTINUING DATA none /K.E.B./

FOREIGN APPLICATIONS none /K.E.B./

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/30/2021

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

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**Courtesy Reminder for
Application Serial No: 17/393,249**

Attorney Docket No: 20942.0019US01

Customer Number: 52835

Date of Electronic Notification: 06/08/2022

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173
52835 7590 07/18/2022 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. 45 South Seventh Street Suite 2700 Minneapolis, MN 55402-1683			EXAMINER BALLER, KELSEY E	
			ART UNIT 3785	PAPER NUMBER
			NOTIFICATION DATE 07/18/2022	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOMail@hsmll.com



UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
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Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR/ PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
17/393,249	08/03/2021	HE, Liguí	20942.0019US01

HAMRE, SCHUMANN, MUELLER & LARSON, P.C. 45 South Seventh Street Suite 2700 Minneapolis, MN 55402-1683		EXAMINER	
		KELSEY E BALLER	
		ART UNIT	PAPER
		3785	20220712

DATE MAILED: 12 July 2022

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Examiner mistakenly marked the action mailed 6/8/22 as a final action. The action should be a non-final and will be corrected accordingly. Applicant should respond to the action filed 6/8/22 as a non-final.

/KELSEY E BALLER/
Examiner, Art Unit 3785

/JUSTINE R YU/
Supervisory Patent Examiner, Art Unit 3785

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 17/393,249		Filing Date 08/03/2021		☐ To be Mailed					
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO													
APPLICATION AS FILED - PART I													
		(Column 1)	(Column 2)										
FOR		NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)						
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A								
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A		N/A								
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A								
TOTAL CLAIMS (37 CFR 1.16(j))		minus 20 =	*		x \$50 =								
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*		x \$240 =								
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).											
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))													
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL							
APPLICATION AS AMENDED - PART II													
		(Column 1)	(Column 2)		(Column 3)								
AMENDMENT	07/20/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)				
	Total (37 CFR 1.16(j))	* 17	Minus	** 20	= 0		x \$50 =		0				
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 3	= 1		x \$240 =		240				
	☐ Application Size Fee (37 CFR 1.16(s))												
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												
								TOTAL ADD'L FEE		240			
AMENDMENT		(Column 1)	(Column 2)		(Column 3)								
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)				
	Total (37 CFR 1.16(j))	*	Minus	**	=		x \$0 =						
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x \$0 =						
	☐ Application Size Fee (37 CFR 1.16(s))												
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))													
								TOTAL ADD'L FEE					
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.								LIE					
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".								/JACQUELYN L WILLIAMS/					
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".													
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.													

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship:	HE	Examiner:	BALLER, KELSEY E.
Serial No.:	17/393249	Group Art Unit:	3785
Filed:	August 3, 2021	Docket No.:	20942.0019US01
Title:	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		

CERTIFICATE OF TRANSMISSION

I hereby certify that this paper is being transmitted by EFS Web to the United States Patent & Trademark Office on July 20, 2022.

By: /Jessica A. Sun/
Name: Jessica A. Sun

AMENDMENT AND RESPONSE

Mail Stop: AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Commissioner:

In response to the Non-Final Office Action issued June 8, 2022, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Remarks begin on page 8 of this paper.

A fee for one additional independent claim accompanies this reply.

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) 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]]~~ a top of the collapsible gasbag is sealed, and ~~[[the]]~~ 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 attached 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.

2. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 1, wherein the connector is provided with a plurality of second check valves, the plurality of second check valves encircling the first check valve.

3. (Currently Amended) ~~The removal device for removing the obstruction in the respiratory tract according to claim 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, 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 attached to a face.

wherein the connector is provided with a bottom plate, the bottom plate being provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure made from an elastic material, and comprises a deformed portion and a first base portion which are connected to each other; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion; one ends, extending toward the center, of the at least three first slits intersect at the same point, and the first gas inlet end is a first vent hole provided in the middle of the first base portion; the first base portion extends into the central cylinder, and an outer side of the first base portion is hermetically connected to an inner side of the central cylinder; a lower end of the central cylinder is hermetically connected to an upper side of the face mask; the deformation portion is exposed out of the central cylinder and extends into the gas storage cavity; when gas flows into the deformation portion through the first vent hole, pressure in the deformation portion gradually increases such that the deformation portion is deformed by expansion, so that the at least three first slits are opened, thereby allowing the gas on the side of the first vent hole to flow into the gas storage cavity; and when the gas flowing into the deformation portion through the first vent hole is reduced or disappears, pressure in the deformation portion is reduced and even reduced to zero, and the deformation portion shrinks under its own elasticity such that the three first slits are closed, thereby preventing the gas in the gas storage cavity from flowing out of the first vent hole.

4. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 3, wherein the upper side of the face mask is provided with a connecting cylinder which is vertically through in the middle, the connecting cylinder being inserted into the inner side of the lower end of the central cylinder from bottom to top, and an outer side of the connecting cylinder being hermetically connected to the inner side of the central cylinder.

5. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 3, wherein an upper side of the bottom plate is provided with a first peripheral side wall encircling the central cylinder, an upper end of the first peripheral side wall shrinking inward to form a stop edge; the collapsible gasbag is provided with a second peripheral side wall made from an elastic material, the second peripheral side wall being provided with a plurality of layers of outwardly convex folds; and the first peripheral side wall covers the lowermost fold of the second peripheral side wall, and the stop edge covers an upper side of the lowermost fold.

6. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 5, wherein a plurality of reinforcement strips are arranged on the upper side of the bottom plate, two opposite ends of each reinforcement strip being separately connected to the inner side of the first peripheral side wall and the outer side of the central cylinder.

7. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 1, wherein a top wall of the collapsible gasbag is connected to a handle for holding.

8. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 3, wherein four first slits are provided, the four first slits being in the shape of a cross.

9. (Currently Amended) ~~The removal device for removing the obstruction in the respiratory tract according to claim 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, 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 attached 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.

10. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 1, wherein the connector is an integrally formed member made from an elastic material.
11. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 1, wherein the face mask, the connector and the collapsible gasbag are integral.
12. (Previously Presented) The removal device for removing the obstruction in the respiratory tract according to claim 1, wherein the collapsible gasbag is not provided with a vent hole which is in direct communication with the outside.
13. (Original) 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.
14. (Original) The connector according to claim 13, wherein the connector is provided with one first check valve and a plurality of second check valves, the plurality of second check valves encircling the first check valve.
15. (Original) The connector according to claim 14, wherein the bottom plate is provided with a central cylinder which is vertically through; the first check valve is of a hollowed structure and comprises a deformed portion and a first base portion which are connected to each other, and a first gas outlet end and a second vent hole of the first check valve are provided in the deformed portion and the first base portion respectively; the first gas outlet end is composed of at least three first slits provided at a top end of the deformed portion, one ends, extending toward the center, of the at least three first slits intersecting at the same point; and the first gas inlet end is a first vent hole provided in the middle of the first base portion.

16. (Original) The connector according to claim 15, wherein 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, and a second gas outlet end and a second gas inlet end of the second check valve are provided in the duckbill portion and the second base portion respectively; 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; and the duckbill portion and the deformed portion separately face two opposite sides of the bottom plate.

17. (Previously Presented) The connector according to claim 15, wherein the removal device is configured to remove an obstruction in a respiratory tract, the removal device comprising a collapsible gasbag, the 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; the 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 the first gas inlet end of the first check valve, and a lower side of the face mask is provided with a flexible annular pad attached to a face.

REMARKS

Applicant respectfully requests favorable reconsideration of this application in view of the above amendments and the following remarks.

Claim 1 is amended. Support for the amendments may be found, for example, in FIGS. 2-4 and page 10, lines 9-16; page 11, lines 1-26; and page 13, lines 29-31 of the Specification as filed.

Claims 3 and 9 have been rewritten in independent form including the features of base claim 1.

No new matter has been added.

Claims 1-17 are pending.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 7, and 10-12 are rejected under 35 U.S.C. 103 as being unpatentable over Lih (U.S. Patent Application Publication No. 2015/0190158) (“Lih”) in view of Tarrats (U.S. Patent No. 4,971,053) (“Tarrats”). Applicant respectfully traverses the rejection. Without acquiescing to the merits of the rejection, but in order to advance prosecution, claim 1 has been amended.

Claim 1 has been amended to recite, at least in part, that 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.

Neither Lih nor Tarrats, taken alone or in combination, teaches or suggests the same combination of features as recited in claim 1.

As admitted on page 3 of the Office Action, Lih “lacks a first check valve on the connector.” At most, Lih teaches a choking intervention device comprising a bellows assembly 102, in which the bellows assembly 102 may include a relief valve 108 configured to allow air to escape from the bellows assembly 102 when the bellows 104 is being compressed (see Lih, paragraphs [0030]-[0031]). As such, Lih merely teaches a relief valve, but fails to disclose or suggest the features recited in claim 1.

Tarrats fails to cure the deficiencies of Lih with respect to claim 1. Rather, Tarrats teaches a one-way check valve 25 that is provided in the airway 24 to prevent air from passing through the airway 24 from the chamber 18 and into a victim’s mouth (see Tarrats, col. 3, lines

36-38). Tarrats also teaches a second one-way check valve 30 that is provided at the forward end wall 13 of the cylinder 11 to allow air in chamber 18 to escape when the piston 16 is moved forwardly and reset in its forward position (see, col. 3, lines 43-46). As such, Tarrats merely teaches a check valve in the airway and a second check valve provided on the cylinder, but fails to disclose or suggest the features recited in claim 1.

That is, although it is suggested on page 3 of the Office Action that Tarrats teaches the previously presented features, Applicant respectfully disagrees and further submits that Tarrats fails to disclose or suggest the features recited in claim 1. For example, Tarrats teaches a specific configuration for the device for aiding choking victims that includes an airway having a one-way check valve and a second on-way check valve provided on the cylinder. Tarrats, however, does not teach or suggest a connector having a bottom plate and the first check valve and the second check valve being arranged on the bottom plate.

Therefore, since neither Lih nor Tarrats, taken alone or in combination, teaches or suggests the same combination of features as recited in claim 1, claim 1 is nonobvious over the cited references.

For at least the reasons discussed above, claim 1 is patentable over Lih and Tarrats. Claims 7 and 10-12 depend on claim 1. Thus, claims 7 and 10-12 are patentable over Lih and Tarrats for at least the same reasons as claim 1. Applicant is not conceding the correctness of the rejection of the features in the claims not discussed herein. Applicant respectfully requests reconsideration and withdrawal of the rejection.

Claim 2 is rejected under 35 U.S.C. 103 as being unpatentable over Lih in view of Tarrats as applied to claim 1 above, and further in view of Rozinsky et al. (U.S. Patent No. 7,351,245) (“Rozinsky”). Applicant respectfully traverses the rejection.

Claim 2 depends on claim 1. Thus, claim 2 is allowable over Lih and Tarrats for at least the same reasons as claim 1. Rozinsky fails to cure the deficiencies of Lih and Tarrats with respect to claim 1. Therefore, claim 2 is patentable over Lih, Tarrats, and Rozinsky. Applicant is not conceding the correctness of the rejection of the features in the claim not discussed herein. Applicant respectfully requests reconsideration and withdrawal of the rejection.

17/393249

Response to Office Action dated 6/8/2022

Allowable Subject Matter

Claims 13-17 are allowed. Claims 3-6, 8, and 9 recite allowable subject matter, and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As such, claims 3 and 9 have been rewritten in independent form.

In view of the above, Applicant respectfully requests favorable reconsideration in the form of a Notice of Allowance. If any questions arise regarding this communication, the Examiner is invited to contact Applicant's representative listed below. Please charge any additional fees or credit any overpayment to Deposit Account No. 50-3478.

Respectfully submitted,

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(612) 455-3800

Dated: July 20, 2022

By: ____/Thomas Lee/_____
Thomas Lee
Reg. No.: 66,396
TL/ajs

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-22)

Approved for use through 05/31/2024. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17393249
	Filing Date	2021-08-03
	First Named Inventor	Ligui HE
	Art Unit	3785
	Examiner Name	BALLER, KELSEY E
	Attorney Docket Number	20942.0019US01

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		17393249
	Filing Date		2021-08-03
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17393249
	Filing Date	2021-08-03
	First Named Inventor	Ligui HE
	Art Unit	3785
	Examiner Name	BALLER, KELSEY E
	Attorney Docket Number	20942.0019US01

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas Lee/	Date (YYYY-MM-DD)	2022-07-20
Name/Print	Thomas Lee	Registration Number	66,396

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Electronic Patent Application Fee Transmittal				
Application Number:		17393249		
Filing Date:		03-Aug-2021		
Title of Invention:		REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR		
First Named Inventor/Applicant Name:		Ligui HE		
Filer:		Thomas Lee/Jessica Sun		
Attorney Docket Number:		20942.0019US01		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
INDEPENDENT CLAIMS IN EXCESS OF 3	2201	1	240	240
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
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Total in USD (\$)				370

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EFS ID:	46235227
Application Number:	17393249
International Application Number:	
Confirmation Number:	4173
Title of Invention:	REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR
First Named Inventor/Applicant Name:	Ligui HE
Customer Number:	52835
Filer:	Thomas Lee/Jessica Sun
Filer Authorized By:	Thomas Lee
Attorney Docket Number:	20942.0019US01
Receipt Date:	20-JUL-2022
Filing Date:	03-AUG-2021
Time Stamp:	16:22:54
Application Type:	Utility under 35 USC 111(a)

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	Amendment/Request for Reconsideration-After Non-Final Rejection		1	1	
	Claims		2	7	
	Applicant Arguments/Remarks Made in an Amendment		8	10	
Warnings:					
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2	Information Disclosure Statement (IDS) Form (SB08)	IDS_US_Form_SB08_0019.pdf	1263341	no	4
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Minneapolis, MN 55402-1683

EXAMINER

BALLER, KELSEY E

ART UNIT

PAPER NUMBER

3785

DATE MAILED: 08/25/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173

TITLE OF INVENTION: REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	11/25/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

52835 7590 08/25/2022
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
45 South Seventh Street
Suite 2700
Minneapolis, MN 55402-1683

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173

TITLE OF INVENTION: REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	11/25/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
BALLER, KELSEY E	3785	128-200240

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173
52835	7590	08/25/2022	EXAMINER	
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.			BALLER, KELSEY E	
45 South Seventh Street			ART UNIT	
Suite 2700			PAPER NUMBER	
Minneapolis, MN 55402-1683			3785	
DATE MAILED: 08/25/2022				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 17/393,249	Applicant(s) HE, Liguí	
	Examiner KELSEY E BALLER	Art Unit 3785	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 7/20/22 and interview on 8/10/22.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-17. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☒ Examiner's Amendment/Comment
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material ____.	7. ☐ Other ____.
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date ____.	

/KELSEY E BALLER/ Examiner, Art Unit 3785	/JUSTINE R YU/ Supervisory Patent Examiner, Art Unit 3785
--	--

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Amendment

2. This office action is in response to the amendment filed 7/20/22. Claims 1, 3, and 9 have been amended, no claims have been cancelled, and no new claims have been added. Thus claims 1-17 are presently pending in this application.

Claims 1-17 are allowed based on the Examiner's Amendment below.

Examiner's Amendment

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Thomas Lee on 8/10/22.

4. The application has been amended as follows:

In claim 1, lines 13-14 "a flexible annular pad attached to a face" is changed to --a flexible annular pad configured to attach to a face--.

In claim 3, lines 14-15 "a flexible annular pad attached to a face" is changed to --a flexible annular pad configured to attach to a face--.

In claim 3, line 20 "one ends," is changed to --one end,--.

In claim 9, lines 13-14 "a flexible annular pad attached to a face" is changed to --a flexible annular pad configured to attach to a face--.

In claim 17, lines 12-13 “a flexible annular pad attached to a face” is changed to --a flexible annular pad configured to attach to a face--.

Reasons for Allowance

5. The following is an examiner’s statement of reasons for allowance:

The prior art of record does not disclose the specific structure and function recited in claims 1, 3, and 9 such that a removal device for removing an obstruction in a respiratory tract, a collapsible gasbag, a connector and a face mask wherein the connector comprises a bottom plate and a first check valve and a 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.

The closest prior art of record Lih (2015/0190158) and Tarrats (4,971,053) do not specifically disclose the claimed apparatus as presented in claims 1, 3, and 9.

Lih discloses a removal device for removing an obstruction in a respiratory tract (Abstract, lines 1-2), the removal device comprising a collapsible gasbag (bellow; 102, fig 1) a connector (118, fig 3) and a face mask (110, fig 3) and a check valve (108, fig 3).

Tarrats teaches an apparatus to remove an obstruction (10, fig 1; Abstract lines 1-2) with a connector (15, fig 1) provided with a first check valve (25a, fig 1; see col. 3, lines 36- 38) a first gas outlet end of the first check valve is in communication with the gas storage cavity (see location of the check valve in fig 1; also note the valve prevents air into the victims mouth therefore the valve inlet is on the face mask side and the outlet is on the bellow side).

However, 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.

Therefore, claims 1-17 have been found allowable since any conclusion of obviousness would be based upon improper hindsight reasoning, using knowledge gleaned only from the applicant's disclosure.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KELSEY E BALLER whose telephone number is (571)272-8153. The examiner can normally be reached Monday - Friday 8 AM - 4 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about

Application/Control Number: 17/393,249
Art Unit: 3785

Page 5

filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC)
at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service
Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KELSEY E BALLER/
Examiner, Art Unit 3785

/JUSTINE R YU/
Supervisory Patent Examiner, Art Unit 3785

<i>Examiner-Initiated Interview Summary</i>	Application No. 17/393,249	Applicant(s) HE, Liguí		
	Examiner KELSEY E BALLER	Art Unit 3785	AIA (First Inventor to File) Status Yes	Page 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	Title	Type
KELSEY E BALLER	Examiner	Telephonic
THOMAS LEE	Attorney	

Date of Interview: 10 August 2022

Issues Discussed:

Proposed Amendment(s)

Examiner contacted applicant to propose amendments to claims 1, 3, 9, and 17 to overcome a 35 USC 101 rejection. Applicant agreed, see attached Examiner's Amendment.

/KELSEY E BALLER/ Examiner, Art Unit 3785	/JUSTINE R YU/ Supervisory Patent Examiner, Art Unit 3785
Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04 Please further see: MPEP 713.04 Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b) 37 CFR § 1.2 Business to be transacted in writing	

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Issue Classification 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Ligu
	Examiner KELSEY E BALLER	Art Unit 3785

CPC						
Symbol					Type	Version
A61M	/	1	/	00	F	2013-01-01
A61B	/	17	/	24	I	2013-01-01
A61B	/	17	/	50	I	2013-01-01
A61M	/	1	/	67	I	2021-05-01
A61M	/	16	/	00	I	2013-01-01
A61M	/	2205	/	3337	A	2013-01-01
A61M	/	16	/	20	A	2013-01-01

CPC Combination Sets					
Symbol				Type	Version
	/		/		

/KELSEY E BALLER/ Examiner, Art Unit 3785 (Assistant Examiner)	10 August 2022 (Date)	Total Claims Allowed: 17	
/JUSTINE R YU/ Supervisory Patent Examiner, Art Unit 3785 (Primary Examiner)	12 August 2022 (Date)	O.G. Print Claim(s) 3	O.G. Print Figure 2

Issue Classification 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Liguí
	Examiner KELSEY E BALLER	Art Unit 3785

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A61M1/00	/	1	/	00
A61B17/24	/	17	/	24
A61B17/50	/	17	/	50
A61M16/00	/	16	/	00
A61M16/20	/	16	/	20
NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

/KELSEY E BALLER/ Examiner, Art Unit 3785 (Assistant Examiner)	10 August 2022 (Date)	Total Claims Allowed: 17	
/JUSTINE R YU/ Supervisory Patent Examiner, Art Unit 3785 (Primary Examiner)	12 August 2022 (Date)	O.G. Print Claim(s) 3	O.G. Print Figure 2

Issue Classification 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Liguí
	Examiner KELSEY E BALLER	Art Unit 3785

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10												
2	2	11	11												
3	3	12	12												
4	4	13	13												
5	5	14	14												
6	6	15	15												
7	7	16	16												
8	8	17	17												
9	9														

/KELSEY E BALLER/ Examiner, Art Unit 3785 (Assistant Examiner)	10 August 2022 (Date)	Total Claims Allowed: 17	
/JUSTINE R YU/ Supervisory Patent Examiner, Art Unit 3785 (Primary Examiner)	12 August 2022 (Date)	O.G. Print Claim(s) 3	O.G. Print Figure 2

<i>Search Notes</i> 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Ligu
	Examiner KELSEY E BALLER	Art Unit 3785

CPC - Searched*		
Symbol	Date	Examiner
a61m16/0003,0057,0063,0075,0084,08,201,206,208-209; A61M1/00,67 A61M2205/075 A61M3/0262	02/24/2022	KEB
A61B17/24,50	02/24/2022	KEB
updated above search	06/02/2022	KEB

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
128	200,205	02/24/2022	KEB

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
inventor search	02/24/2022	KEB
Consulted Rachel Sippel (suggested a61m16/0003,0057,0063,0075,0084,08,201,206,208-209 and class 604)	02/24/2022	KEB
Consulted Brad Philips (AU 3799 suggested A61B17/24,50A1M1/6)	02/24/2022	KEB
text search (see printout history)	02/24/2022	KEB
consulted class 604 (Laura Bouchelle AU3783 suggested A61M2205/075 and 3/0262)	06/02/2022	KEB
updated above search	06/02/2022	KEB
updated above search	08/10/2022	KEB

/KELSEY E BALLER/ Examiner, Art Unit 3785	
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<i>Search Notes</i> 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Liguí
	Examiner KELSEY E BALLER	Art Unit 3785

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	USpat and PGpub databases text searched	08/10/2022	KEB

/KELSEY E BALLER/ Examiner, Art Unit 3785	
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<i>Index of Claims</i> 	Application/Control No. 17/393,249	Applicant(s)/Patent Under Reexamination HE, Liguí
	Examiner KELSEY E BALLER	Art Unit 3785

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	02/24/2022	06/02/2022	08/10/2022						
1	1	✓	✓	=						
2	2	✓	✓	=						
3	3	✓	✓	=						
4	4	✓	✓	=						
5	5	✓	✓	=						
6	6	✓	✓	=						
7	7	✓	✓	=						
8	8	✓	✓	=						
9	9	✓	✓	=						
10	10	✓	✓	=						
11	11	✓	✓	=						
12	12	✓	✓	=						
13	13	✓	✓	=						
14	14	✓	✓	=						
15	15	✓	✓	=						
16	16	✓	✓	=						
17	17	✓	✓	=						

Doc code: IDS

PTO/SB/08a (01-22)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 05/31/2024. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17393249
	Filing Date	2021-08-03
	First Named Inventor	Ligui HE
	Art Unit	3785
	Examiner Name	BALLER, KELSEY E
	Attorney Docket Number	20942.0019US01

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	4196728		1980-04-08	Granite		
	2	9932936		2018-04-03	Klonis et al.		
	3	10271998		2019-04-30	LaVon et al.		

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	1							

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		17393249
	Filing Date		2021-08-03
	First Named Inventor	Ligui HE	
	Art Unit	3785	
	Examiner Name	BALLER, KELSEY E	
	Attorney Docket Number	20942.0019US01	

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	1		
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Examiner Signature	/KELSEY E BALLER/		Date Considered 08/10/2022
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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.			

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17393249
	Filing Date	2021-08-03
	First Named Inventor	Ligui HE
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	Examiner Name	BALLER, KELSEY E
	Attorney Docket Number	20942.0019US01

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas Lee/	Date (YYYY-MM-DD)	2022-07-20
Name/Print	Thomas Lee	Registration Number	66,396

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	5	((("HE") near3 ("Ligui"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/14 01:22 PM
L2	32152	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 01:28 PM
L3	53	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and heimlich	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 01:31 PM
L4	13	("20030028158" "3316903" "3939830" "4768237" "4934360" "4971053" "5313938" "5609149" "5782837" "6478770" "7351245" "D613468").PN. OR ("10052115").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 01:33 PM
L5	6	("20050085799" "20090175747" "20120221010" "3939830" "4971053" "5338166").PN. OR ("10675393").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 01:41 PM
L6	314	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (collaps\$4 squeez\$4 fold\$4 retractable) near (bag cavity sack ambu)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 02:02 PM
L7	4	((("DCSTAR") near3 ("INC"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/02/14 02:34 PM
L8	36	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 02:39 PM

L9	1006	A61M2205/3337).cpc. and (bag cavity sack ambu) with ((multiple two many few plurality) near (valve check duckbill)) (A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (multiple two many few plurality) near (valve check duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:36 PM
L10	195	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and (multiple two many few plurality) near ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:37 PM
L11	1529	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/14 03:46 PM
L12	1346	(A61M1/00 or A61B17/24 or A61B17/50 or A61M1/67 or A61M16/00 or A61M16/20 or A61M2205/3337).cpc. and ((check duckbill) adj valve)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 03:47 PM
L13	1759	128/200.24.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/14 04:20 PM
L14	2075	128/205.24.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:07 AM
L15	582	128/205.24.ccls. and (mask face) with (bag cavity sack supply container)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:09 AM
L16	414	128/207.12.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/02/15 09:11 AM

L17	15317	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/02/16 08:55 AM
L18	3723	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (mask face) with (bag cavity sack supply container)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 08:55 AM
L19	4505	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (bag cavity sack supply container) with (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 09:17 AM
L20	362	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (mask face) with (bag cavity sack supply container) near (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 09:18 AM
L26	280	L20	(US-PGPUB; USPAT)	OR	ON	ON	2022/02/16 11:23 AM
L27	374	a61m16/0003,0057,006 3,0075,0084,08,201,20 6,208-209.cpc. and (mask face) with (bag cavity sack supply container) near (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/16 11:50 AM
L28	4	("6145135").pn.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/02/24 11:05 AM
L29	35	(Artificial Intelligence) More Like: US-20130312757-A1 Text: (US-9333318-B2 OR EP-2996753-B1 OR US-10272226-B2 OR US-10307562-B2 OR US-20190224440-A1 OR US-11090458-B2 OR US-9216265-B2 OR EP-3273856-A4 OR EP-2384212-B1 OR US-10420909-B2 OR US-20140083419-A1 OR US-20160022948- A1 OR US- 20190358422-A1 OR US-20160121072-A1 OR BR-PI0918320-A2	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/25 02:28 PM

L30	43	OR EP-3797683-A1 OR WO-2009089807-A1 OR US-20200360641-A1 OR US-20160158477-A1 OR CA-2968982-A1).did. (Artificial Intelligence) More Like: US-4971053-A Text: (US-5088486-A OR US-20090228018-A1 OR WO-2011084133-A1 OR US-20120221010-A1 OR US-8454624-B2 OR US-5609149-A OR US-5255672-A OR US-4934360-A OR DE-102019120252-A1 OR AU-2019204561-B2 OR DE-4329377-A1 OR US-3939830-A OR WO-2019008139-A1 OR DE-102017115283-A1 OR US-20210251658-A1 OR US-4662367-A OR CA-2905092-A1 OR US-20110152794-A1 OR AU-2014233492-B2 OR CN-102309812-B).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/25 02:33 PM
L31	38	(Artificial Intelligence) More Like: US-4934360-A Text: (US-5484391-A OR WO-2008070794-A9 OR US-5571074-A OR US-5582580-A OR US-5628305-A OR US-20020139369-A1 OR US-7121278-B2 OR CN-109513087-A OR CN-109513087-B OR US-4898167-A OR WO-2007073211-A1 OR EP-0537225-A1 OR US-5609149-A OR NZ-544257-A OR EP-0537225-B1 OR US-5313938-A OR US-5345929-A OR US-2737177-A OR CN-107510873-A OR JP-H0596007-A).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/25 02:35 PM
L32	34	("3106204" "3216413" "4774941").pn. OR	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/05/25 02:35 PM

L33	26	("4934360").urpn. AND (PGPB USPT USOC).dbnm. ("2428451" "3158152" "3185147").pn. OR ("3939830").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/05/25 02:59 PM
L34	37	(Artificial Intelligence) More Like: US-10052115-B2 Text: (WO-2011084133-A1 OR US-20150190158-A1 OR IL-283723-D0 OR US-5609149-A OR WO-2021252376-A1 OR WO-2015167709-A1 OR US-20120221010-A1 OR US-8454624-B2 OR WO-2007073211-A1 OR US-4971053-A OR US-5313938-A OR DE-102017115283-A1 OR NZ-544257-A OR WO-2019008139-A1 OR US-3939830-A OR CN-216366227-U OR CN-113827827-A OR US-4934360-A OR TW-202146065-A OR CA-2296580-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/25 03:01 PM
L35	24	("1371702" "1848234" "2453475" "2995131" "3939830" "4141355" "4836198").pn. OR ("4971053").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/05/26 02:46 PM
L36	55	("2428451" "RE24193" "3939830" "4518258" "4527897" "4662367" "4677289" "4678338" "4790818" "4834541" "4838697" "4878756" "4886366" "4917500" "4934360" "4971053" "5049985" "5073345" "5083868" "5091642" "5150174" "5609149" "5628305" "5680220" "5754283" "5769072" "5782837" "5844680" "5949549" "6020583" "6040902" "6094272")	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/05/26 02:50 PM

		"6157454" "6262804" "6272440" "6301004" "6305818" "6462819" "6535287" "6583880" "6603551" "6614530" "6674530" "6707553" "6741351" "20020036772" "20020099387" "20030028158" "20030030808" "20030071998").pn. OR ("7351245").urpn. AND (PGPB USPT USOC).dbnm.					
L37	301	a61m1/0058,77,80,92.c pc. AND (mask face) WITH (bag cavity sack supply container)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 03:53 PM
L38	121	604/27-35.ccls. AND (bag bladder container) WITH (airway throat mouth obstruct\$3)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 03:57 PM
L39	472	a61m1/0058,77,80,92.c pc. AND (compress\$4 squeez\$3 depressable) WITH (bag cavity sack supply container bladder)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:02 PM
L40	10	a61m1/0058,77,80,92.c pc. AND (compress\$4 squeez\$3 depressable) WITH (bag cavity sack supply container bladder) SAME (mouth throat airway nose)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:11 PM
L41	275	a61m2205/075.cpc. AND (bag cavity sack supply container bladder) SAME (mouth throat airway nose)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:17 PM
L42	2	a61m2205/075.cpc. AND (bag cavity sack supply container bladder) SAME (mouth throat airway nose) WITH (obstruction blockage)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:18 PM
L43	236	a61m2205/075.cpc. AND (bag cavity sack supply container bladder) SAME (mouth throat airway)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/31 04:18 PM
L44	314	a61m2205/075.cpc. AND (bag cavity sack	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	ON	2022/06/01 12:36 PM

		supply container bladder) SAME (air airway fluid) WITH (valve duckbill)	JPO; DERWENT; IBM_TDB)				
L45	6961	(A61M1/\$).cpc. AND (manual bag compress\$3) WITH (valve duckbill)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 01:33 PM
L46	5732	(A61M1/\$).cpc. AND (manual bag compress\$3) WITH (valve duckbill)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:34 PM
L47	933	(A61M1/\$).cpc. AND (manual bag compress\$3) WITH (valve duckbill) WITH (suction remove negative)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:34 PM
L48	19	(A61M1/\$).cpc. AND (manual bag compress\$3) WITH (valve duckbill) WITH (suction remove negative) SAME (mouth nasal throat)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:35 PM
L49	13	("3316903" "3939830" "4768237" "4934360" "4971053" "5313938" "5609149" "5782837" "6478770" "7351245" "D613468" "20030028158").pn. OR ("10052115").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:35 PM
L50	0	(A61M1/\$).cpc. AND (manual AND compress\$3) WITH (valve duckbill) WITH (suction remove negative) SAME (mouth nasal throat)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:36 PM
L51	18	(A61M1/\$).cpc. AND (manual AND compress\$3) WITH (valve duckbill) WITH (suction remove negative)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:36 PM
L52	6884	(A61M1/\$).cpc. AND (valve duckbill) WITH (suction remove negative)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:37 PM
L53	140	(A61M1/\$).cpc. AND (valve duckbill) WITH (suction remove	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 01:37 PM

L54	2	negative) SAME (airway airflow) (A61M1/00 OR A61B17/24 OR A61B17/50 OR A61M1/67 OR A61M16/00 OR A61M16/20 OR A61M2205/3337).cpc. AND (mask face mouth airway) WITH (multiple many plurality two) near3 ((relief exhaust check) ADJ valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 02:11 PM
L55	46	(A61M).cpcl. AND (mask face mouth airway) WITH (multiple many plurality two) near3 ((relief exhaust check) ADJ valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 02:12 PM
L56	3620	(A61M).cpcl. AND (multiple many plurality two) WITH ((relief exhaust check) ADJ valve)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 02:12 PM
L57	3114	(A61M).cpcl. AND (multiple many plurality two) WITH ((relief exhaust check) ADJ valve)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:12 PM
L58	551	(A61M).cpcl. AND (multiple many plurality two) WITH ((relief exhaust) ADJ valve)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:13 PM
L59	13	("3316903" "3939830" "4768237" "4934360" "4971053" "5313938" "5609149" "5782837" "6478770" "7351245" "D613468" "20030028158").pn. OR ("10052115").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:17 PM
L60	34	(Artificial Intelligence) More Like: US-10052115-B2 Text: (WO-2011084133-A1 OR US-20150190158-A1 OR IL-283723-D0 OR US-5609149-A OR WO-2021252376-A1 OR WO-2015167709-A1 OR US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK,	OR	ON	ON	2022/06/01 02:18 PM

		20120221010-A1 OR US-8454624-B2 OR CN-215606163-U OR US-4971053-A OR DE- 102017115283-A1 OR WO-2019008139-A1 OR US-3939830-A OR CN-216366227-U OR CN-113827827-A OR TW-202146065-A OR AU-604028-B2 OR CA- 2296580-A1 OR KR- 101245521-B1 OR EP- 0994738-A1).did.	TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L61	31	(A61M).cpcl. AND (multiple many plurality two) WITH ((relief exhaust) ADJ valve) WITH mask	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:20 PM
L62	41	"anti choke"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:22 PM
L63	29942	"choking"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:23 PM
L64	910	(A61M).cpcl. AND choking	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:23 PM
L65	54	(A61M).cpcl. AND choking WITH valve	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2022/06/01 02:23 PM
L66	35	(Artificial Intelligence) More Like: US-7351245-B2 Text: (CN-105682698-B OR CN-105682698-A OR WO-2015051018-A2 OR EP-3052158-A2 OR US-20150094674-A1 OR US-10105472-B2 OR US-20060064111- A1 OR EP-0949499-B1 OR JP-2000055735-A OR DE-69811053-T2 OR AU-2001231280-B2 OR EP-1257795-A1 OR US-6369895-B1 OR BR-112016007156-A2 OR EP-3052158-B1 OR US-20090025717-A1 OR JP-H05212105-A OR US-8181651-B2 OR US-10675393-B1 OR EP-3639865-A2).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/06/01 02:25 PM
L67	3	("10271998" OR "4196728" OR "9932936").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/10 04:37 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	2	((chok\$3 obstruct\$3) AND (throat respiratory mouth) AND (bag reservoir chamber container) AND (air gas) AND (mask mouthpiece contact) AND (connect\$3 mat\$3) AND (first one) AND (two multiple plurality) AND (valve "check valve" duckbill) AND (inlet in enter open\$3) AND (pad cushion) AND (plate support base)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/10 04:43 PM
N2	2	((chok\$3 obstruct\$3) AND (throat respiratory mouth) AND (bag reservoir chamber container) AND (air gas) AND (mask mouthpiece contact) AND (connect\$3 mat\$3) AND (first one) AND (two multiple plurality) AND (valve "check valve" duckbill) AND (pad cushion) AND (plate support base)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/10 04:43 PM
N3	3	((chok\$3 obstruct\$3) AND (throat respiratory mouth) AND (bag reservoir chamber container) AND (air gas) AND (mask mouthpiece contact) AND (connect\$3 mat\$3) AND (first one) AND (two multiple plurality) AND (valve "check valve" duckbill) AND (pad cushion)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/10 04:44 PM
N4	5	((chok\$3 obstruct\$3) AND (throat respiratory mouth) AND (bag reservoir chamber container) AND (air gas) AND (mask mouthpiece contact) AND (two multiple	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/10 04:44 PM

N5	5	plurality) AND (valve "check valve" duckbill) AND (pad cushion)).clm. ((chok\$3 obstruct\$3) AND (throat respiratory mouth) AND (bag reservoir chamber container) AND (air gas) AND (mask mouthpiece contact) AND (two multiple plurality) AND (valve duckbill) AND (pad cushion)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/08/10 04:45 PM
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Bibliographic Data

Application No: 17/393,249

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged: /KELSEY E BALLER/

Examiner's Signature

Initials

Title:

REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN
RESPIRATORY TRACT AND CONNECTOR

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/03/2021	128	3785	20942.0019US01
RULE			

APPLICANTS

DCSTAR INC, New York, NY,

INVENTORS

Ligui HE, New York, NY, UNITED STATES

CONTINUING DATA none /K.E.B./

FOREIGN APPLICATIONS none /K.E.B./

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/30/2021

** SMALL ENTITY **

STATE OR COUNTRY

UNITED STATES

ADDRESS

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.

45 South Seventh Street

Suite 2700

Minneapolis, MN 55402-1683

UNITED STATES

FILING FEE RECEIVED

\$3,000

P000167



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PATENT AND TRADEMARK OFFICE**

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #
17/393,249

RECEIPT DATE / TIME
09/06/2022 06:27:05 PM ET

ATTORNEY DOCKET #
20942.0019US01

Title of Invention

REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 4173

FILED BY Satoko Furuya

PATENT CENTER # 60942398

AUTHORIZED BY Thomas Lee

CUSTOMER # 52835

FILING DATE 08/03/2021

CORRESPONDENCE
ADDRESS -

FIRST NAMED
INVENTOR Ligui HE

Payment Information

PAYMENT METHOD
CARD / 1021

PAYMENT TRANSACTION ID
E202296127473212

PAYMENT AUTHORIZED BY
Satoko Furuya

FEE CODE	DESCRIPTION	ITEM PRICE(\$)	QUANTITY	ITEM TOTAL(\$)
2501	UTILITY ISSUE FEE	600.00	1	600.00
TOTAL AMOUNT:				\$600.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C.

371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

52835 7590 08/25/2022
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
45 South Seventh Street
Suite 2700
Minneapolis, MN 55402-1683

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Satoko Furuya	(Typed or printed name)
/Satoko Furuya/	(Signature)
September 6, 2022	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173

TITLE OF INVENTION: REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	11/25/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
BALLER, KELSEY E	3785	128-200240

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Hamre, Schumann,
2 Mueller & Larson, P.C.
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

DCSTAR INC

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

NEW YORK, NEW YORK

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-3478

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Thomas Lee/

Date September 6, 2022

Typed or printed name Thomas Lee

Registration No. 66,396



UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
17/393,249

RECEIPT DATE / TIME
09/06/2022 06:27:05 PM ET

ATTORNEY DOCKET #
20942.0019US01

Title of Invention

REMOVAL DEVICE FOR REMOVING OBSTRUCTION IN RESPIRATORY TRACT AND CONNECTOR

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 4173

FILED BY Satoko Furuya

PATENT CENTER # 60942398

FILING DATE 08/03/2021

CUSTOMER # 52835

FIRST NAMED
INVENTOR Ligui HE

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Thomas Lee

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Fee_Transmittal_0019.pdf	1	Issue Fee Payment (PTO-85B)	2034 KB

Warning: The attached file contains comments or annotations. Comments are not recommended and may cause processing problems with the document.

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
Fee_Transmittal_0019.pdf	9A3AD106B9A44A1AD11E7B7354EA36ED6CA6629F925455DF9 DFE9A2E5D9C2045359E63035E4E889D9FA99362AFCD6A5698 23F5FE4330D56BC9BCD854952BE444

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized

P000171

by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/393,249	08/03/2021	Ligui HE	20942.0019US01	4173
52835 7590 09/23/2022 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. 45 South Seventh Street Suite 2700 Minneapolis, MN 55402-1683			EXAMINER BALLER, KELSEY E	
			ART UNIT 3785	PAPER NUMBER
			NOTIFICATION DATE 09/23/2022	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOMail@hsmll.com

Corrected Notice of Allowability	Application No. 17/393,249	Applicant(s) HE, Liguí	
	Examiner KELSEY E BALLER	Art Unit 3785	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to declaration filed 5/19/22.
☒ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on 19 May 2022.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-17. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☒ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material ____	7. ☐ Other ____
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date ____	

/KELSEY E BALLER/ Examiner, Art Unit 3785	/TU A VO/ Primary Examiner, Art Unit 3785
--	--

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Affidavit

2. The declaration under 37 CFR 1.130 filed 5/19/22 is sufficient to overcome the rejection of claims 1-3, 5, and 7-17 based upon IDEAR prior art applied under 3 U.S.C. 102 (a)(1).

Response to Amendment

3. This office action is in response to the amendment filed 7/20/22. Claims 1, 3, and 9 have been amended, no claims have been cancelled, and no new claims have been added. Thus claims 1-17 are presently pending in this application.

Claims 1-17 are allowed based on the Examiner's Amendment below.

Examiner's Amendment

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Thomas Lee on 8/10/22.

5. The application has been amended as follows:

In claim 1, lines 13-14 "a flexible annular pad attached to a face" is changed to --a flexible annular pad configured to attach to a face--.

In claim 3, lines 14-15 “a flexible annular pad attached to a face” is changed to --a flexible annular pad configured to attach to a face--.

In claim 3, line 20 “one ends,” is changed to --one end,--.

In claim 9, lines 13-14 “a flexible annular pad attached to a face” is changed to --a flexible annular pad configured to attach to a face--.

In claim 17, lines 12-13 “a flexible annular pad attached to a face” is changed to --a flexible annular pad configured to attach to a face--.

Reasons for Allowance

6. The following is an examiner’s statement of reasons for allowance:

The prior art of record does not disclose the specific structure and function recited in claims 1, 3, and 9 such that a removal device for removing an obstruction in a respiratory tract, a collapsible gasbag, a connector and a face mask wherein the connector comprises a bottom plate and a first check valve and a 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.

The closest prior art of record Lih (2015/0190158) and Tarrats (4,971,053) do not specifically disclose the claimed apparatus as presented in claims 1, 3, and 9.

Lih discloses a removal device for removing an obstruction in a respiratory tract (Abstract, lines 1-2), the removal device comprising a collapsible gasbag (bellow; 102, fig 1) a connector (118, fig 3) and a face mask (110, fig 3) and a check valve (108, fig 3).

Tarrats teaches an apparatus to remove an obstruction (10, fig 1; Abstract lines 1-2) with a connector (15, fig 1) provided with a first check valve (25a, fig 1; see col. 3, lines 36- 38) a first gas outlet end of the first check valve is in communication with the gas storage cavity (see

location of the check valve in fig 1; also note the valve prevents air into the victims mouth therefore the valve inlet is on the face mask side and the outlet is on the bellow side).

However, 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.

Therefore, claims 1-17 have been found allowable since any conclusion of obviousness would be based upon improper hindsight reasoning, using knowledge gleaned only from the applicant's disclosure.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KELSEY E BALLER whose telephone number is (571)272-8153. The examiner can normally be reached Monday - Friday 8 AM - 4 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KELSEY E BALLER/
Examiner, Art Unit 3785

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ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

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