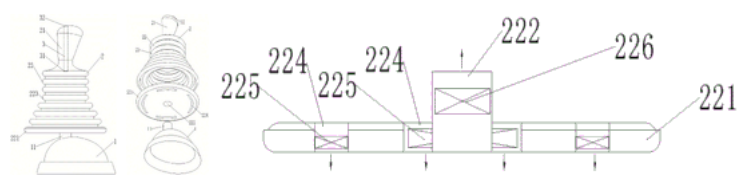


Device and method for sucking foreign body in trachea

Abstract

The invention provides a tracheal foreign body suction device and a method, comprising the following steps: a respiratory mask and an aspirator; the respiratory mask includes: the breathing mask comprises a breathing mask body, a breathing pipe, a suction pipe and a suction pipe, wherein the breathing pipe penetrates through the breathing mask body, one end of the breathing pipe is positioned outside the breathing mask body and connected with the suction pipe, and the other end of the breathing pipe is positioned inside the breathing mask body; the extractor includes: the suction disc is a cylindrical body with an opening at the bottom, a chassis is arranged at the opening at the bottom of the cylindrical body, an air outlet hole and a connecting pipe are arranged on the chassis, an air outlet one-way valve is arranged on the air outlet hole, one end of the connecting pipe is connected with the chassis, the other end of the connecting pipe extends inwards and is arranged in the cylindrical body, and an air inlet one-way valve is arranged at the other end of the connecting pipe; the size of the connecting pipe is matched with that of the vent pipe; the invention has the advantages of simple operation and capability of effectively taking out foreign matters in the air outlet pipe, and is suitable for the field of medical instruments.

Images (3)



Classifications

 **A61B17/50** Instruments, other than pincettes or toothpicks, for removing foreign bodies from the human body

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Landscapes

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Surgery

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Claims (9)

Hide Dependent ^ translated from Chinese

1. Tracheal foreign body suction device, characterized in that: comprising: a breathing mask (1) and an aspirator (2) used in cooperation with each other; The breathing mask (1) comprises: a ventilation tube (11), the ventilation tube (11) is arranged through the breathing mask (1), and one end of the ventilation tube (11) is located outside the breathing mask (1) and is connected to the breathing mask (1). The suction device (2) is connected, and the other end of the ventilation tube (11) is located inside the breathing mask (1); The suction device (2) comprises: a handle (21) and a suction cup (22) arranged below the handle (21), the suction cup (22) is a cylindrical body with an opening at the bottom, and a bottom opening of the cylindrical body is provided with a suction cup (22). A chassis (221), the chassis (221) is provided with an air outlet (224) and a connecting pipe (222), the air outlet (224) is provided with an air outlet check valve (225), and the connecting pipe (222) is connected with the chassis (221), the other end of the connecting pipe (222) extends inwardly and is arranged inside the cylindrical body, and the other end of the connecting pipe (222) is provided with an air intake check valve (226); The size of the connecting pipe (222) matches the size of the vent pipe (11). 2. The tracheal foreign body suction device according to claim 1, wherein a searchlight (3) is provided in the handle (21), and the lamp cap (31) of the searchlight (3) is located at the bottom of the handle (21). 3. At the connection with the suction cup (22), the switch (32) of the searchlight (3) is located on the outer surface of the handle (21). 3. The tracheal foreign body suction device according to claim 1, wherein the cylindrical body comprises: a plurality of grooves (223) arranged in sequence from top to bottom are connected, and the groove (223) located at the top is formed.) is connected with the handle (21), and the groove (223) at the bottom is connected with the chassis (221). 4. The tracheal foreign body suction device according to claim 3, wherein the grooves (223) are distributed at equal intervals. 5. 5. The tracheal foreign body suction device according to claim 1, wherein the outer edge of the breathing mask (1) is made of medical silica gel, and the shape fits the face. 6. 6. The tracheal foreign body suction device according to claim 1, wherein the breathing mask (1) and the suction device (2) are made of transparent materials. 7. 7. The tracheal foreign body suction device according to claim 1, wherein the chassis (221) and the connecting pipe (222) are integrally formed. 8. 8. The tracheal foreign body suction device according to claim 1, wherein the cylindrical body is made of deformable elastic material. 9. 9. The tracheal foreign body suction method, using the tracheal foreign body suction device according to any one of claims 1 to 8 to carry out foreign body suction, characterized in that: the method comprises the following steps: S10, fit the breathing mask to the face of the human body, and insert the ventilation tube into the connecting tube; S20, depress the handle, drive the cylindrical body to squeeze toward the face, the air flow formed in the cylindrical body is

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downward, the air outlet check valve is opened, the air intake check valve is closed, the air flow is discharged from the air outlet hole, and a negative pressure is formed in the cylindrical body. pressure; S30, pull up the handle, the air outlet check valve is closed, the air inlet check valve is opened, and under the action of negative pressure, the foreign matter in the human trachea is sucked out from the trachea.

Description

Device and method for sucking foreign body in trachea

Technical Field

The invention relates to the technical field of medical instruments, in particular to a tracheal foreign body suction device and a method.

Background

The foreign body in the trachea is one of the common emergency treatment of otolaryngology department, is especially frequently used for children, because children are young, when eating food such as candy, firm, the children easily swallow directly under the condition of not chewing, or in the amusement at ordinary times, easily the foreign body is swallowed by mistake, causes the trachea to block, influences breathing.

After the foreign body enters the respiratory tract, if the foreign body does not take measures in time, the foreign body can block the glottis or the trachea, so that the glottis or the glottis is tightly closed due to strong stimulation, and the dead can be immediately caused by cyanosis and asphyxia due to insufficient gas exchange.

In the existing hospital, in order to smoothly take out the object clamped into the trachea, the object is taken out by using tweezers in the prior art, if the foreign object is in a deeper position, the trachea needs to be directly opened for finding the foreign object through an operation, and the method needs a larger operation incision, so that great pain is caused to a patient.

Disclosure of Invention

Aiming at the defects in the related technology, the technical problem to be solved by the invention is as follows: the tracheal foreign matter suction device and the method are simple to operate and capable of effectively taking out foreign matters in the trachea.

In order to solve the technical problems, the technical scheme adopted by the invention is as follows:

tracheal foreign body suction means includes: the breathing mask and the suction device are matched with each other; the respiratory mask includes: the breathing mask comprises a breathing mask body, a breathing pipe, a suction pipe and a suction pipe, wherein the breathing pipe penetrates through the breathing mask body, one end of the breathing pipe is positioned outside the breathing mask body and connected with the suction pipe, and the other end of the breathing pipe is positioned inside the breathing mask body; the extractor includes: the suction disc is a cylindrical body with an opening at the bottom, a chassis is arranged at the opening at the bottom of the cylindrical body, an air outlet hole and a connecting pipe are arranged on the chassis, an air outlet one-way valve is arranged on the air outlet hole, one end of the connecting pipe is connected with the chassis, the other end of the connecting pipe extends inwards and is arranged in the cylindrical body, and an air inlet one-way valve is arranged at the other end of the connecting pipe; the size of the connecting pipe is matched with that of the vent pipe.

Preferably, a searchlight is arranged in the handle, a lamp cap of the searchlight is positioned at the joint of the bottom of the handle and the sucker, and a switch of the searchlight is positioned on the outer surface of the handle.

Preferably, the cylindrical body comprises: a plurality of groove connection that from top to bottom set gradually forms, and the recess that is located the top is connected with the handle, and the recess that is located the bottom is connected with the chassis.

Preferably, the grooves are equally spaced.

Preferably, the outer edge of the breathing mask is made of medical silica gel and is shaped to fit the face.

Preferably, the breathing mask and the suction device are both made of transparent materials.

Preferably, the chassis and the connecting pipe are of an integrally formed structure.

Preferably, the cylindrical body is made of a deformable elastic material.

Accordingly, a tracheal foreign body aspiration method for performing foreign body aspiration using the tracheal foreign body aspiration device as described above, the method comprising the steps of:

s10, attaching the breathing mask to the face of a human body, and inserting the ventilating pipe into the connecting pipe;

s20, pressing down the handle to drive the barrel body to extrude towards the face, the airflow formed in the barrel body downwards, the air outlet one-way valve is opened, the air inlet one-way valve is closed, the airflow is discharged from the air outlet, and negative pressure is formed in the barrel body;

s30, pulling the handle, closing the air outlet one-way valve, opening the air inlet one-way valve, and sucking out the foreign matters in the trachea of the human body from the trachea under the action of negative pressure.

The invention has the beneficial technical effects that:

1. when the breathing mask is used, the breathing mask is attached to the face of a human body, the vent pipe is inserted into the connecting pipe, the barrel body is driven to extrude towards the face by pressing down the handle, airflow formed in the barrel body is downward, the air outlet one-way valve is opened, the air inlet one-way valve is closed, the airflow is discharged from the air outlet hole, and negative pressure is formed in the barrel body; after the handle is pulled up, the air outlet one-way valve is closed, the air inlet one-way valve is opened, and under the action of negative pressure, foreign matters in the trachea of the human body are sucked out from the trachea; the invention has simple operation, can effectively take out foreign matters in the trachea and has strong practicability.

2. The cylindrical body of the present invention comprises: a plurality of recess that from top to bottom set gradually are connected and are formed, through the setting of recess, have increased the elastic flexibility nature of the barrel-shaped body, have strengthened the internal air current mobility of cylindric, can form the negative pressure fast in suction means.

3. When the searchlight is started, light emitted by the lamp holder penetrates through the sucker and then illuminates the inside of the mask, so that a user can conveniently observe the position of foreign matters in the oral cavity, and the foreign matter sucking work is conveniently implemented.

Drawings

FIG. 1 is a schematic view showing the construction of the tracheal foreign body suction device of the present invention;

FIG. 2 is an exploded view of the tracheal foreign body suction device of the present invention;

FIG. 3 is a schematic structural view of a base pan according to the present invention;

in the figure: 1 is a breathing mask, 2 is a suction device, and 3 is a searchlight;

11 is a vent pipe; 21 is a handle, and 22 is a sucker; 31 is a lamp cap, 32 is a switch;

221 is a bottom plate, 222 is a connecting pipe, 223 is a groove, 224 is an air outlet hole, 225 is an air outlet one-way valve, and 226 is an air inlet one-way valve.

Detailed Description

In order to make the objects, technical solutions and advantages of the embodiments of the present invention clearer, the technical solutions in the embodiments of the present invention will be clearly and completely described below with reference to the drawings in the embodiments of the present invention, and it is obvious that the described embodiments are some embodiments, but not all embodiments, of the present invention; all other embodiments, which can be derived by a person skilled in the art from the embodiments given herein without making any creative effort, shall fall within the protection scope of the present invention.

Next, the present invention will be described in detail with reference to the drawings, wherein the cross-sectional views illustrating the structure of the device are not enlarged partially according to the general scale for convenience of illustration when describing the embodiments of the present invention, and the drawings are only examples, which should not limit the scope of the present invention. In addition, the three-dimensional dimensions of length, width and depth should be included in the actual fabrication.

An embodiment of the present invention is described in detail below with reference to the accompanying drawings.

Example one

FIG. 1 is a schematic view showing the construction of the tracheal foreign body suction device of the present invention; FIG. 2 is an exploded view of the tracheal foreign body suction device of the present invention; FIG. 3 is a schematic structural view of a base pan according to the present invention; as shown in fig. 1 to 3, the tracheal foreign body suction device includes: a breathing mask 1 and an extractor 2 which are matched with each other; the respiratory mask 1 includes: the breathing mask comprises a breathing mask 1, a breathing pipe 11, a suction pipe 2 and a suction pipe 11, wherein the breathing pipe 11 is arranged on the breathing mask 1 in a penetrating manner, one end of the breathing pipe 11 is positioned outside the breathing mask 1 and is connected with the suction pipe 2, and the other end of the breathing pipe 11 is positioned inside the breathing mask 1;

the extractor 2 comprises: the suction cup 22 is a cylindrical body with an opening at the bottom, a base plate 221 is arranged at the opening at the bottom of the cylindrical body, an air outlet 224 and a connecting pipe 222 are arranged on the base plate 221, an air outlet one-way valve 225 is arranged on the air outlet 224, one end of the connecting pipe 222 is connected with the base plate 221, the other end of the connecting pipe 222 extends inwards and is arranged in the cylindrical body, and an air inlet one-way valve 226 is arranged at the other end of the connecting pipe 222; the size of the connection pipe 222 matches the size of the ventilation pipe 11.

In fig. 3, arrows indicate the airflow direction.

A tracheal foreign body aspiration method for aspiration of a foreign body using the tracheal foreign body aspiration device as described above, the method comprising the steps of:

s10, attaching the breathing mask to the face of a human body, and inserting the ventilating pipe into the connecting pipe;

s20, pressing down the handle to drive the barrel body to extrude towards the face, the airflow formed in the barrel body downwards, the air outlet one-way valve is opened, the air inlet one-way valve is closed, the airflow is discharged from the air outlet, and negative pressure is formed in the barrel body;

s30, pulling the handle, closing the air outlet one-way valve, opening the air inlet one-way valve, and sucking out the foreign matters in the trachea of the human body from the trachea under the action of negative pressure.

When the breathing mask is used, the breathing mask 1 is attached to the face of a human body, the ventilating pipe 11 is inserted into the connecting pipe 222, the cylindrical body is driven to be extruded towards the face direction by pressing the handle 21, the airflow formed in the cylindrical body is downward, the air outlet one-way valve 225 is opened, the air inlet one-way valve 226 is closed, the airflow is discharged from the air outlet 224, and negative pressure is formed in the cylindrical body; after the handle 21 is pulled up, the air outlet one-way valve 225 is closed, the air inlet one-way valve 226 is opened, and under the action of negative pressure, foreign matters in the trachea of the human body are sucked out from the trachea; the invention has simple operation, can effectively take out foreign matters in the trachea and has strong practicability.

Specifically, in this embodiment, the outer edge of respirator 1 adopts medical silica gel to make and shape and facial laminating, just respirator 1 and aspirator 2 all adopt transparent material to make, transparent material can make the convenient observation foreign matter of people whether sucked out.

Further, the bottom plate 221 and the connection pipe 222 are integrally formed.

Further, the cylindrical body is made of a deformable elastic material, such as: a rubber material.

In this embodiment, the size of the connection pipe 222 matches with the size of the ventilation pipe 11, which may specifically be: the diameter of the air pipe 11 is slightly larger than the size of the connecting pipe 222, so that after the connecting pipe 222 is inserted into the air pipe 11, the outer wall of the connecting pipe 222 is in close contact with the inner wall of the air pipe 11, thereby improving the air tightness of the suction device.

In addition, in order to improve the using effect, the handle can be repeatedly pressed and pulled, and the negative pressure in the suction device reaches a larger value until the foreign matters are taken out.

Example two

In the first embodiment, the searchlight 3 is arranged in the handle 21, the lamp head 31 of the searchlight 3 is located at the connection position of the bottom of the handle 21 and the suction cup 22, and the switch 32 of the searchlight 3 is located on the outer surface of the handle 21.

In this embodiment, after the searchlight 3 is turned on, the light emitted by the lamp head 31 passes through the suction cup and then illuminates the inside of the mask, so that a user can conveniently observe the position of foreign matters in the oral cavity, and the foreign matter sucking work is convenient to implement.

EXAMPLE III

On the basis of the first embodiment, the tracheal foreign body suction device comprises: a plurality of grooves 223 that set gradually from top to bottom are connected and are formed, and the groove 223 that is located the top is connected with handle 21, and the groove 223 that is located the bottom is connected with chassis 221.

Specifically, the grooves 223 are equally spaced.

In a third embodiment, the cylindrical body in this embodiment includes: a plurality of recesses 223 that from top to bottom set gradually are connected and are formed, through the setting of recess 223, have increased the elastic flexibility of the barrel-shaped body, have strengthened the internal air current mobility of barrel-shaped, can form the negative pressure fast in suction means.

In conclusion, the tracheal foreign body suction device and method provided by the invention can conveniently suck foreign bodies, are convenient to use, easy to popularize and high in practicability.

In the description of the present invention, it is to be understood that the terms "central," "longitudinal," "lateral," "length," "width," "thickness," "upper," "lower," "front," "rear," "left," "right," "vertical," "horizontal," "top," "bottom," "inner," "outer," "clockwise," "counterclockwise," "axial," "radial," "circumferential," and the like are used in the orientations and positional relationships indicated in the drawings for convenience in describing the invention and to simplify the description, and are not intended to indicate or imply that the referenced devices or elements must have a particular orientation, be constructed and operated in a particular orientation, and are therefore not to be considered limiting of the invention.

Furthermore, the terms "first," "second" and "first" are used for descriptive purposes only and are not to be construed as indicating or implying relative importance or implicitly indicating the number of technical features indicated. Thus, a feature defined as "first" or "second" may explicitly or implicitly include at least one such feature. In the description of the present invention, "a plurality" means at least two, e.g., two, three, etc., unless specifically limited otherwise.

In the present invention, unless otherwise expressly stated or limited, the terms "mounted," "connected," "secured," and the like are to be construed broadly and can, for example, be fixedly connected, detachably connected, or integrally formed; can be mechanically or electrically connected; they may be directly connected or indirectly connected through intervening media, or they may be connected internally or in any other suitable relationship, unless expressly stated otherwise. The specific meanings of the above terms in the present invention can be understood by those skilled in the art according to specific situations.

In the description herein, references to the description of the term "one embodiment," "some embodiments," "an example," "a specific example," or "some examples," etc., mean that a particular feature, structure, material, or characteristic described in connection with the embodiment or example is included in at least one embodiment or example of the invention. In this specification, the schematic representations of the terms used above are not necessarily intended to refer to the same embodiment or example. Furthermore, the particular features, structures, materials, or characteristics described may be combined in any suitable manner in any one or more embodiments or examples. Furthermore, various embodiments or examples and features of different embodiments or examples described in this specification can be combined and combined by one skilled in the art without contradiction.

In the foregoing embodiments, the descriptions of the respective embodiments have respective emphasis, and for parts that are not described in detail in a certain embodiment, reference may be made to related descriptions of other embodiments.

Finally, it should be noted that: the above embodiments are only used to illustrate the technical solution of the present invention, and not to limit the same; while the invention has been described in detail and with reference to the foregoing embodiments, it will be understood by those skilled in the art that: the technical solutions described in the foregoing embodiments may still be modified, or some or all of the technical features may be equivalently replaced; and the modifications or the substitutions do not make the essence of the corresponding technical solutions depart from the scope of the technical solutions of the embodiments of the present invention.

Patent Citations (12)

Publication number	Priority date	Publication date	Assignee	Title
CN2256736Y *	1996-06-18	1997-06-25	中国人民解放军第四五五医院	Cardio-pulmonary resuscitation apparatus with suction function
CN203829021U *	2014-05-04	2014-09-17	蔡惠梁	Tracheal foreign matter suction remover
US20150190158A1 *	2014-01-09	2015-07-09	Arthur LIH	Choking intervention device and method of use thereof
CN105852941A *	2016-03-31	2016-08-17	陈晓阳	Sucker-like air way foreign matter extractor
CN206044704U *	2016-06-13	2017-03-29	河北唯美医疗器械有限公司	A kind of children's trachea foreign body suction means
CN208610961U *	2017-10-27	2019-03-19	香港合智科技有限公司	A kind of airway obstruction unblocker
CN208610963U *	2018-02-22	2019-03-19	焦桂花	Medical protractor
CN208809248U *	2018-02-10	2019-05-03	刘涛	A kind of Multifunctional laryngeal mask with integration capability
CN211300263U *	2019-11-20	2020-08-21	刘书明	Device for sucking out foreign matters blocking respiratory tract
CN211512007U *	2019-11-12	2020-09-18	蒲瑞清	Suction type foreign matter taking-out device
CN211560306U *	2019-10-18	2020-09-25	济南市儿童医院	Foreign matter suction device for gastrointestinal tract
CN112043888A *	2020-09-27	2020-12-08	杨硕	Respiratory tract obstruction first-aid device
Family To Family Citations				

* Cited by examiner, † Cited by third party

Similar Documents

Publication	Publication Date	Title
US8696648B2	2014-04-15	Nasal aspirator
CN107626006B	2024-04-19	Effective support type portable balanced negative pressure suction device for field use
CN206350863U	2017-07-25	A kind of trachea cannula
CN214761401U	2021-11-19	Trachea foreign matter suction means
CN217724181U	2022-11-04	Sputum suction device suitable for prone position patient
CN112932633A	2021-06-11	Device and method for sucking foreign body in trachea
CN215083001U	2021-12-10	Sputum suction device for children respiratory department
CN204033304U	2014-12-24	With the laryngoscope blade of suction sputum function
CN207355717U	2018-05-15	Oral care toothbrush
CN102727979A	2012-10-17	Double-layer cuff trachea cannula
CN203169668U	2013-09-04	Medical portable sputum aspirator
CN206587214U	2017-10-27	A kind of disposable suction tube
CN219127611U	2023-06-06	Adjustable sputum aspirator
CN203564624U	2014-04-30	Y-shaped airbag trachea cannula
CN213608650U	2021-07-06	Disposable sputum suction tube is through mouth nasal cavity sputum suction with visual auxiliary device
CN206007677U	2017-03-15	A kind of Multifunctional sputum aspirator
CN211327557U	2020-08-25	Sputum-sucking oxygen supply tube
CN209548008U	2019-10-29	Pacifier detection device
CN110464893A	2019-11-19	Quick and safe sputum suction device for emergency medicine
CN219290267U	2023-07-04	Sputum aspirator
CN206196747U	2017-05-31	A kind of detachable multifunctional pest sucking device
CN221431692U	2024-07-30	Visual sputum aspirator tube
CN219127558U	2023-06-06	A sputum suction device
CN113616892A	2021-11-09	Artificial airway tube convenient for sputum suction
CN110237389A	2019-09-17	an endotracheal tube

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
CN202110259986.4A	2021-03-10	2021-03-10	Device and method for sucking foreign body in trachea

Applications Claiming Priority (1)

Application	Filing date	Title
CN202110259986.4A	2021-03-10	Device and method for sucking foreign body in trachea

Legal Events

Date	Code	Title	Description
2021-06-11	PB01	Publication	
2021-06-11	PB01	Publication	

2021-07-02	SE01	Entry into force of request for substantive examination
2021-07-02	SE01	Entry into force of request for substantive examination