

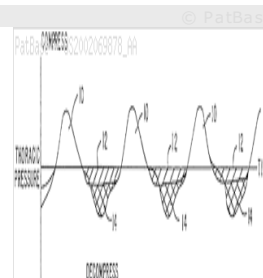
1) Family number: 30336996 (US2002069878A)

APPARATUS AND METHODS FOR ENHANCING CARDIOPULMONARY BLOOD FLOW AND VENTILATION

Abstract: Source: US2002069878A According to the invention, methods and devices for increasing cardiopulmonary circulation induced by chest compression and decompression when performing cardiopulmonary resuscitation are provided. According to one method, a pressure responsive inflow valve is coupled to a patient's airway. Chest compressions and chest decompressions are performed. During chest decompression the inflow valve prevents respiratory gases from entering the lungs until a certain negative intrathoracic pressure level is exceeded at which time the one inflow valve opens. In this way, the inflow valve assists in increasing the magnitude and duration of negative intrathoracic pressure during decompression to enhance the amount of blood flow into the heart and lungs. Further, the patient is supplied with a pressurized respiratory gas through the inflow valve when the inflow valve opens to ventilate the patient.

Probable Assignee: ZOLL MEDICAL CORP

Earliest Publication Date: 19941213



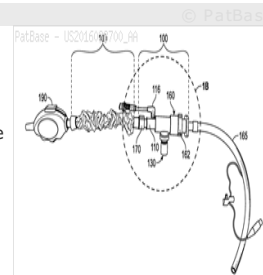
2) Family number: 61362693 (US2016038700A)

AIRWAY ADAPTERS AND SUCTION CATHETER SYSTEMS

Abstract: Source: US2016038700A Airway adapters and suction catheter systems, and methods of using the same, are described herein. An exemplary airway adapter assembly may comprise a connector body portion having a first end and a second end. The connector body portion may define an elongate cavity having an axial center between the first and the second end. The exemplary airway adapter assembly may also comprise a valve coupled to the second end of the connector body. The exemplary airway adapter assembly may also comprise a ventilation base member comprising a tubular portion coupled to the second end of the connector body portion and ventilator port. The ventilator port may comprise a conduit having a first conduit end and a second conduit end, and the first conduit end may be coupled to the tubular portion through an articulable connection. An exemplary closed suction catheter system may comprise a suction control valve assembly and a closed suction catheter sheath.

Probable Assignee: VYAIR MEDICAL CONSUMABLES LLC

Earliest Publication Date: 20160106



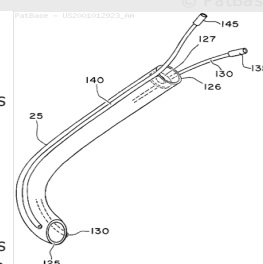
3) Family number: 28239853 (US2001012923A)

METHOD AND APPARATUS FOR VENTILATION / OXYGENATION DURING GUIDED INSERTION OF AN ENDOTRACHEAL TUBE

Abstract: Source: US2001012923A A method and apparatus for guiding insertion of an endotracheal tube into a patient's trachea simultaneously allows a continued supply of air/oxygen to be delivered into the patient's airway and lungs. A guide having a curved distal portion is inserted into the patient's mouth and hypopharynx. A second lumen extending along the guide is used to supply air/oxygen into the patient's airway and to flush carbon dioxide from the lungs. A fiber optic probe is inserted through an endotracheal tube and this assembly is advanced along the guide into the patient's airway, while ventilation continues without interruption through the second lumen. The direction of the distal tip of the fiber optic probe can be controlled by the physician. This allows the physician to carefully guide the fiber optic probe and endotracheal tube to a position past the larynx while ventilation continues. After the distal end of the fiber optic probe has guided the endotracheal tube past the larynx and into the trachea, the guide and mask are withdrawn over the fiber optic probe. The fiber optic probe can be used to monitor the position of the distal end of the endotracheal tube during this step to ensure that it remains in position. The fiber optic probe is then removed from within the endotracheal tube. The cuff on the endotracheal tube is inflated and a ventilator is connected to the proximal end of the endotracheal tube to ventilate the patient.

Probable Assignee: EVERGREEN MEDICAL INC

Earliest Publication Date: 19971209



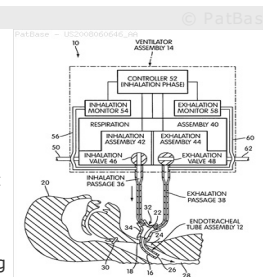
4) Family number: 41605579 (US2008060646A)

VENTILATING APPARATUS AND METHOD ENABLING A PATIENT TO TALK WITH OR WITHOUT A TRACHEOSTOMY TUBE CHECK VALVE

Abstract: Source: US2008060646A A method of operating a ventilator assembly having inhalation and exhalation passages communicating with one another, and a respiration assembly that can perform repetitive respiratory cycles. The method includes (a) connecting the conduit with an open end of an endotracheal tube positioned within the trachea so that the open end leads into the airway below the vocal cords, (b) repetitively cycling the respiration assembly so that during the inhalation phase, gas in the inhalation passage flows through the endotracheal tube and into the airway, and during the exhalation phase, an exhalation valve is maintained relatively closed and the exhaled gases flow pass the vocal cords and out of the mouth thereby facilitating the patient's ability to speak, and (c) monitoring ring the pressure within at least one of the passages during both phases for determining the pressure within the patient for use in operating the ventilator assembly.

Probable Assignee: RIC INVESTMENTS LLC

Earliest Publication Date: 20080313



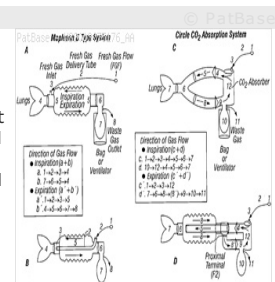
5) Family number: 32198391 (US2003075176A)

BREATHING CIRCUITS HAVING UNCONVENTIONAL RESPIRATORY CONDUITS AND SYSTEMS AND METHODS FOR OPTIMIZING UTILIZATION OF FRESH GASES

Abstract: Source: US2003075176A A breathing circuit comprising first and second conduits is disclosed, wherein at least one of the conduits is a non-conventional conduit. A multilumen unilimb breathing circuit is also disclosed having first and second conduits, wherein when the proximal ends of said first and second conduits are each connected to an inlet and outlet fitting, respectively, movement of the distal end of the first conduit causes a corresponding movement of the distal end of the second conduit. In an embodiment, at least one of said conduits is coiled. In another embodiment, a coiled conduit is contained within an outer flexible conduit that is axially extendable and compressible, forming a unilimb multilumen respiratory circuit. The outer flexible conduit may be pleated to provide for axial extension and contraction. The multilumen respiratory circuit can provide a variable rebreathing volume. In an embodiment, at least one tube in a multilumen respiratory conduit is radially collapsible and radially expandable to a maximum radius for carrying respiratory gases to and from a patient. Also disclosed are methods and systems of optimizing utilization of fresh gases during artificial or assisted ventilation, including administering anesthesia.

Probable Assignee: AMBU A S

Earliest Publication Date: 20030403



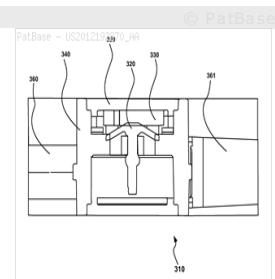
6) Family number: 51605663 (US2012192870A)

PRESSURE RELIEF IN A RESPIRATORY ASSISTANCE SYSTEM

Abstract: Source: US2012192870A A pressure relief device comprising a valve configured to resiliently deform in response to a predetermined pressure; and a sound dampener configured to dampen a sound generated by the valve when the valve resiliently deforms in response to said predetermined pressure.

Probable Assignee: CAREFUSION 207 INC

Earliest Publication Date: 20120802



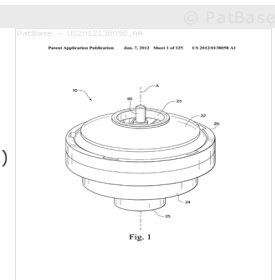
7) Family number: 48310364 (US2012138058A)

SINGLE STAGE, AXIAL SYMMETRIC BLOWER AND PORTABLE VENTILATOR

Abstract: Source: US2012138058A A blower (10) includes a housing (20) including a proximal opening (23) and a distal opening (25) that are co-axially aligned, a stator component (30) provided to the housing, an impeller (60) positioned between the proximal opening of the housing and the stator component, and a motor (40) adapted to drive the impeller. The impeller includes a plurality of impeller blades. The stator component includes a plurality of air directing grooves (35) along its exterior surface. The leading edge of the air directing grooves extend tangentially outwards from the outer tips of the impeller blades and are configured to collect the air exiting the impeller blades and direct it from a generally tangential direction to a generally radial direction by dividing the air from the impeller and directing the air along a curved path towards the distal opening so that airflow becomes substantially laminar.

Probable Assignee: RESMED PTY LTD

Earliest Publication Date: 20110217



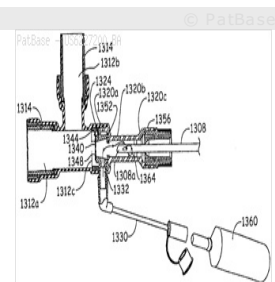
8) Family number: 20675507 (US6227200B)

RESPIRATORY SUCTION CATHETER APPARATUS

Abstract: Source: US6227200B An improved respiratory suction apparatus catheter includes a manifold for attachment to the distal hub of an endotracheal tube to form a ventilation circuit, a catheter tube which is displaceable through the manifold and into the endotracheal tube to suction secretions from the tube and lungs, and a valve mechanism disposed adjacent the ventilation circuit to minimize the draw of air from the ventilation circuit of a patient while the catheter is being cleaned. In a preferred embodiment of the invention, the catheter is cleaned more thoroughly than in the prior art while simultaneously drawing little or no air from the patient's ventilation circuit.

Probable Assignee: AVENT INC

Earliest Publication Date: 20000323

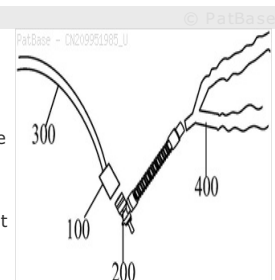


9) Family number: 77336022 (CN209951985U)

ARTIFICIAL AIRWAY, AIRWAY TUBING SEALED AND VENTILATOR SYSTEM (MACHINE TRANSLATION)

Abstract: Source: CN209951985U The present disclosure relates to an artificial airway, airway tubing sealed and ventilator system, the obturator comprises a hollow obturator sheet body, a first connecting tube, second connecting tube and the shut-off valve, said first connecting one end of the tube for communicating the airway adapter or ventilator ventilator circuit Y-shaped pipe, and the other end is connected to the closure body cavity communicating with the interior, the second connection pipe connecting one end of the artificial airway, and the other end is connected to the closure body cavity communicating with the interior, the shut-off valve is provided on the sealed body to pass off the first and second connecting pipe connecting pipe. The present disclosure provides an artificial airway, airway tubing sealed and ventilator systems can be reduced between the ventilator circuit and the patient's artificial airway off in the process, due to the artificial airway pressure drop brought a series of adverse clinical consequences.

Probable Assignee: BEIJING TIAN TAN HOSPITAL CAPITAL MEDICAL UNIV



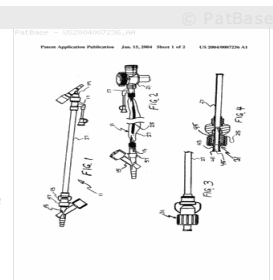
Earliest Publication Date: 20200117
10) Family number: 30257023 (US2004007236A)

ENDOTRACHEAL SURFACTANT DISTRIBUTION SYSTEM

Abstract: Source: US2004007236A Apparatus for delivering a medicament through an artificial airway connected to a patient ventilation/aspiration system without breaking the ventilation circuit comprises a manifold with an interior chamber communicating with first, second and third ports. The manifold is structured and arranged to maintain an uninterrupted ventilation pathway between the first and second ports and to provide a travel path for a suction catheter between the second and third ports, the second port being adapted for connection to the artificial airway. The apparatus further includes a catheter assembly, including a catheter with a lumen, positioned within a protective sleeve and slidable through a distal end fixture connected to the third port. The catheter assembly is structured and arranged to permit advancement of the distal end of the catheter through the manifold and artificial airway. A syringe and a suction control valve are interchangeably connectable to the proximal end of the catheter assembly.

Probable Assignee: SORENSON MEDICAL INC

Earliest Publication Date: 20040115



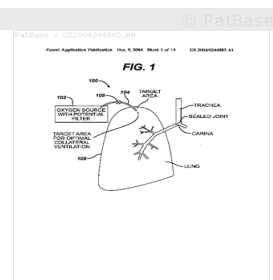
11) Family number: 31379477 (US2004244803A)

INTRA-THORACIC COLLATERAL VENTILATION BYPASS SYSTEM

Abstract: Source: US2004244803A A long term oxygen therapy system having an oxygen supply directly linked with a patient's lung or lungs may be utilized to more efficiently treat hypoxia caused by chronic obstructive pulmonary disease such as emphysema and chronic bronchitis. The system includes an oxygen source, one or more valves and fluid carrying conduits. The fluid carrying conduits link the oxygen source to diseased sites within the patient's lungs. A collateral ventilation bypass trap system directly linked with a patient's lung or lungs may be utilized to increase the expiratory flow from the diseased lung or lungs, thereby treating another aspect of chronic obstructive pulmonary disease. The system includes a trap, a filter/one-way valve and an air carrying conduit. In various embodiments, the system may be intrathoracic, extrathoracic or a combination thereof. A pulmonary decompression device may also be utilized to remove trapped air in the lung or lungs, thereby reducing the volume of diseased lung tissue. A lung reduction device may passively decompress the lung or lungs. In order for the system to be effective, an airtight seal between the parietal and visceral pleurae is required. Chemical pleurodesis is utilized for creating the seal.

Probable Assignee: CORDIS CORP

Earliest Publication Date: 20041205



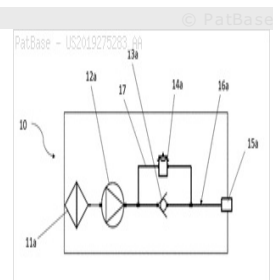
12) Family number: 75825839 (US2019275283A)

VENTILATOR WITH SWITCHING VALVE

Abstract: Source: US2019275283A Disclosed is a ventilator with an apparatus input and an apparatus output and with an airway between the apparatus input and the apparatus output. A breathing gas drive, a non-return valve and a switching valve are arranged in the airway. The non-return valve prevents a flow of breathing gas in a direction from the apparatus output to the apparatus input and the switching valve enables at least temporarily a flow of breathing gas in a direction from the apparatus output to the apparatus input.

Probable Assignee: LOEWENSTEIN MEDICAL TECHNOLOGY SA

Earliest Publication Date: 20190911



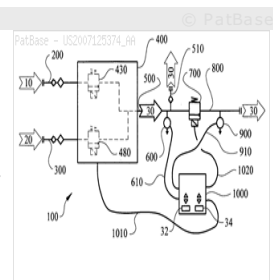
13) Family number: 34533137 (US2007125374A)

GAS BLENDER WITH AUXILIARY MIXED GAS OUTLET

Abstract: Source: US2007125374A A gas blender with auxiliary mixed gas outlet for mixing a primary gas, generally air, and a secondary gas, generally oxygen, to obtain a mixed gas having several controlled characteristics. The gas blender may be incorporated into a Continuous Positive Airway Pressure (CPAP) device. The gas blender controls the mixing to produce the mixed gas having a predetermined mixture setpoint, generally an oxygen percentage, and a predetermined control setpoint, generally a pressure setpoint or flow rate setpoint. The gas blender provides an auxiliary mixed gas source for use by an auxiliary piece of equipment such as a nebulizer or resuscitation bag. The gas blender includes a primary gas inlet passageway, a secondary gas inlet passageway, a gas mixing apparatus, a mixed gas distribution passageway with an auxiliary mixed gas outlet, a gas sensor, a delivery sensor, a mixed gas delivery control valve, a mixed gas controlled passageway, and a controller.

Probable Assignee: VYAIR MEDICAL CONSUMABLES LLC

Earliest Publication Date: 20070607

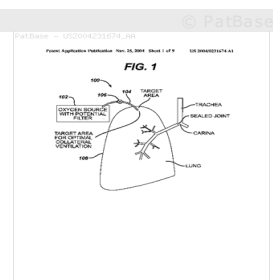


14) Family number: 31366875 (US2004231674A)

INTRA/EXTRA-THORACIC COLLATERAL VENTILATION BYPASS SYSTEM

Abstract: Source: US2004231674A A long term oxygen therapy system having an oxygen supply directly linked with a patient's lung or lungs may be utilized to more efficiently treat hypoxia caused by chronic obstructive pulmonary disease such as emphysema and chronic bronchitis. The system includes an oxygen source, one or more valves and fluid carrying conduits. The fluid carrying conduits link the oxygen source to diseased sites within the patient's lungs. A collateral ventilation bypass trap system directly linked with a patient's lung or lungs may be utilized to increase the expiratory flow from the diseased lung or lungs, thereby treating another aspect of chronic obstructive pulmonary disease. The system includes a trap, a filter/one-way valve and an air carrying conduit. In various embodiments, the system may be intrathoracic, extrathoracic or a combination thereof. In order for the system to be effective, an airtight seal between the parietal and visceral pleurae is required. Chemical pleurodesis is utilized for creating the seal.

Probable Assignee: CORDIS CORP



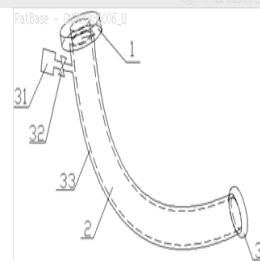
Earliest Publication Date: 20041120
15) Family number: 59929660 (CN204485006U)

INFLATABLE NASOPHARYNGEAL VENTILATION DUCT USED FOR EMERGENCY TREATMENT

Abstract: Source: CN204485006U The utility model provides an inflatable nasopharyngeal ventilation duct used for emergency treatment. The inflatable nasopharyngeal ventilation duct comprises a breathing machine connector and a ventilation tube cavity, the breathing machine connector is connected to the end, located outside the nasal cavity, of the ventilation tube cavity, the nasopharyngeal ventilation duct comprises a supporting device, the supporting device comprises a ventilation opening, a valve and a channel in a sequential connection mode, and the channel is tightly attached to the ventilation tube cavity. According to the novel nasopharyngeal ventilation duct, through additionally arranging the supporting device, it is effectively prevented that the ventilation duct is flattened by pressing of the choanae, and effective ventilation is guaranteed; furthermore, an air bag is scientifically arranged, the air bag at the near end of the nasopharyngeal ventilation duct is inflated with air and then can effectively close the opening of the pharyngeal cavity and the esophagus, only the glottis opening is opened, and therefore an effective artificial airway is established. The device is simple in structure and high in functionality, actual application requirements are met, it is avoided that the front end of the nasopharyngeal ventilation duct stimulates the epiglottis and the glottis, regurgitation and aspiration of a patient are avoided, and the situation that because a nasopharyngeal ventilation duct induces the laryngospasm in the using process, the life safety of the patient is threatened is reduced.

Probable Assignee: WUHAN GENERAL HOSPITAL OF GUANGZHOU MILITARY

Earliest Publication Date: 20150722



16) Family number: 74101929 (CO20190003481A)

VALVULA DE MANEJO DE VIA AEREA ARTIFICIAL CON ADAPTACION A DISPOSITIVOS RESPIRATORIOS - VALVULA DE BERNA ARTIFICIAL AIRWAY MANAGEMENT VALVE WITH ADAPTATION TO RESPIRATORY DEVICES - BERN (MACHINE TRANSLATION)

Abstract: Source: CO20190003481A La presente invencion se refiere a un dispositivo o valvula de manejo de via aerea artificial con adaptacion a dispositivos y equipos respiratorios o Valvula de Berna, la cual comprende un cuerpo con acoples para los diferentes dispositivos de soporte de via respiratoria, un puerto para suministro de medicamento mediante inhaladores de dosis medida (IDM) con su respectiva tapa, una pluralidad de tapas para puerto universal que evitan la perdida de presion cuando los puertos universales no estan en uso, una valvula para sello de via aerea y una tapa de la derivacion de limpieza que se acopla con un diafragma de la derivacion de limpieza. Esta valvula esta especialmente adaptada a los dispositivos respiratorios (tubos endotraqueales, canulas de traqueostomia, humidificadores pasivos, circuito del ventilador mecanico, dispositivo BVM - Bolsa Valvula Mascarilla, entre otros), permite el suministro de medicamentos inhalados, la conexion de capnografos lineales, la monitorizacion de la terapia con oxido nitrico, la aspiracion de secreciones, la insufacion de gas traqueal (IGT); asi mismo evita el colapso pulmonar durante la desconexion del soporte ventilatorio y permite la realizacion de procedimientos como fibrobroncoscopias, facilitando la intervencion del paciente criticamente enfermo con soporte de ventilacion mecanica invasiva. The present invention relates to a device or artificial airway management valve with adaptation to respiratory devices and equipment or valve of Bern, which comprises a body with fittings for the different airway support devices, a port for delivery by metered dose inhalers (MDI) with its respective lid, a plurality of caps for universal port that prevent the pressure loss when the universal ports are not in use, a valve to seal the airway and a lid of the derivation of cleaning that is coupled with a diaphragm of the derivation of cleaning. This valve is specially adapted to the respiratory devices (endotracheal tubes, tracheostomy tubes, humidifiers liabilities, mechanical fan circuit, BVM - Bag Valve Mask Device, among others), enables the delivery of inhaled medications, the connection of capnografos linear, the therapy monitoring with nitric oxide, the aspiration of secretions, tracheal gas insufflation (IGT); likewise prevents lung collapse during the disconnection of the ventilatory support and allows the realization of procedures such as fibrobroncoscopias, facilitating the intervention of the critically ill patient with invasive mechanical ventilation support.

Probable Assignee: FUND VALLE DEL LILI

Earliest Publication Date: 20190412

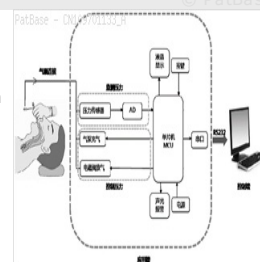
17) Family number: 74183882 (CN109701133A)

NOVEL DEVICE AND METHOD FOR MONITORING PRESSURE OF ARTIFICIAL AIRWAY GASBAG

Abstract: Source: CN109701133A The invention discloses novel device and method for monitoring pressure of an artificial airway gasbag. The novel device for monitoring pressure of the artificial airway gasbag comprises an application terminal and a PC control terminal. The application terminal is used for performing real-time monitoring on pressure of an artificial airway gasbag of a patient with intubation as well as carrying out automatic control, and then, sending out acousto-optic alarm when the pressure exceeds normal range; and the application terminal comprises a gasbag interface, an air pump, a pressure sensor, a solenoid valve, an AD chip, a single chip, a liquid crystal display, a key circuit, an acousto-optic alarm, a power module, an external power connector, a power switch, a 9V battery and an RS232 serial port. The PC control terminal realizes intelligent management on gasbag pressure data on basis of a personal terminal. The novel device and method for monitoring pressure of the artificial airway gasbag overcome the disadvantages of monitoring methods of existing artificial airway gasbag pressure gauges, and effectively achieve intelligent management on gasbag pressure, thereby reducing incidence of ventilator-associated pneumonia and decreasing damage on airway mucosa; and thus, the novel device and method are of great significance to mechanical ventilation treatment on patients.

Probable Assignee: UNIV ZHEJIANG

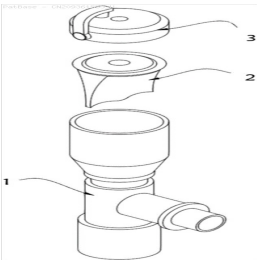
Earliest Publication Date: 20190503



18) Family number: 75800445 (CN209361555U)

DISPOSABLE ONE-WAY VALVE TYPE RESPIRATOR ARTIFICIAL AIRWAY CONNECTING DEVICE

Abstract: Source: CN209361555U The utility model relates to the technical field of machinery. The utility model relates to a respirator, in particular to a disposable one-way valve type respirator artificial airway connecting device. The device comprises a three-way pipe, a one-way valve and a dustproof cover, one-way valve comprises a silica gel pad, a channel is formed in the silica gel pad; an insertion hole is formed in the center of the top of the dustproof cover; a plug column is arranged at one end of the connecting rope; the utility model discloses a disposable one-way valve type respirator artificial airway connecting device. A one-way valve is arranged in a connecting pipe; oxygen passes through the side part of the silica gel pad; pressure extruding towards the middle is formed on the silica gel pad; the bottom of the channel is in a closed state; therefore, the artificial airway does not need to be separated from the respirator connecting tube, ventilation of a patient is not affected, the problems of transient oxygen deficit and small airway collapse are avoided, the sputum splashing phenomenon of the patient is reduced, the sputum suction tube can penetrate through the one-way valve to enter the three-way tube, and the three-way tube is simple in overall structure, high in practicability, convenient to operate and convenient to popularize.



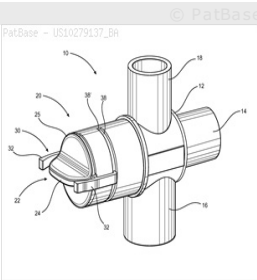
Probable Assignee: AFFILIATED HOSPITAL OF XUZHOU MEDICAL UNIV

Earliest Publication Date: 20190910

19) Family number: 74226727 (US10279137B)

CONNECTOR ASSEMBLY FOR A MEDICAL VENTILATOR SYSTEM

Abstract: Source: US10279137B A connector assembly for a medical ventilator including a housing having a plurality of ports including an intervention port disposed and structured to introduce an intervention device into said housing and a patient airway. The plurality of ports also include a ventilator port and an airway port respectively disposed and structured to connect a ventilator and an artificial airway in fluid communication with one another. A valve structure is movably and removably disposed within a valve port and is disposable between open and closed positions. The closed position comprising the intervention port sealed from fluid communication with the housing and a closed ventilator circuit defining fluid communication between the ventilator port and the airway port. The open orientation comprising the intervention port disposed in communicating relation with the airway port concurrent to fluid communication between the ventilator port and the airway port.

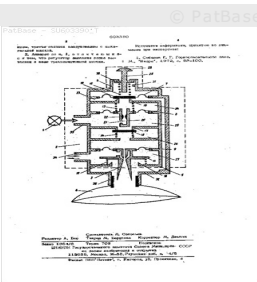


Probable Assignee: MOREJON ORLANDO

Earliest Publication Date: 20190507

20) Family number: 5515348 (SU603390T)

LUNG ARTIFICIAL VENTILATION APPARATUS



Abstract: Source: SU603390T Izobretenie.otosits to medical equipment, namely resuscitation tehVike. Known apparatus comprising a source of compressed gas (oxygen tank and reiuktrr), the dispenser, the switching mechanism, the injector valves ducts dyhatelyuyu mask with an exhalation valve 1. Switchgear is a cylindrical chamber with the control valves on the piston rod, two alternately transferred kryvayushimi chetfeh of nozzles, thereby varies the direction of movement of the gas stream. The switching mechanism is s membrane of razuyuschey with the housing chamber associated with the respiratory tract of the patient, the linkage system of two levers and the tightening of the spring. Linkage system is associated with the rod and has a device raepredelitelvogo pressure regulator. Apttara disadvantage is large in scope and extent of the breathing circuit, which increases the size of apparatus rata. In operation, the apparatus is filled with He gas and 1dyhatelnym oporzhy by a number of respiratory cycles, which leads to wastage of the gas cylinder. In addition, work on the injector voltage prot respiratory cycle (breath active - active exhalation) significantly increases this expense. To operate the apparatus for 50 min desired oxygen 400 l (2 liter balloon filled with oxygen under pressure 200 Kr / cM) i aim of the invention is to reduce gas flow {downsizing of the apparatus. This is achieved by the fact that the machine dispenser, and a switching mechanism in the form of irreversible vypolnetsy trehmembrannogo pneumatic relay, the first membrane is rigidly connected to the injector, the second - is equipped with rod tgaevmosoprotivleniem, third - is associated with airway breathing mask. Moreover, a pressure regulator input vtolnen as a three-position buttons. The drawing shows schematically apparatus for artificial pulmonary ventilation. It contains 1 source of compressed gas, trehmembrannoe pneumatic relay; 2, 3 injector, pressure regulator 4 inhalation duct 5 and 6 breathing mask. Trehmembrannoe pnevmorepe 2 has membrane 7-9, flaps 10 and 11, the spring 12-15, 16-18 nozzle. The membrane 7 comprises a rigid center 19, the membrane 8 is associated rigidly with the rod 20, the diaphragm 9 is bonded rigidly with the injector 3, in which the housing is formed integrally with the flap 11 has a rod passage 21 20 with pnevmosoprotnv leniem 22 constitute pneumatic relay elements listed Camera 23-27. 3 injector valve 11, spring 15 and the nozzle 18 to form irreversible valve remaining elements are pneumatic relay 2 is fulfilled fundksho raspreditel1 On devices and switching mechanism present. The regulator 4 comprises a three-position key 28 to the rod 29, the stop 30 and 31 fik.sator Trehmembrannoe pneumatic relay 2, the injector 3 and the controller 4 are enclosed in the CSF 32 empty, which comprises fittings 33-S5, Camera 23 is coupled impact spirit gadfly 6 through the mask 6 dyhateldymn ways patient. Chamber 24 through the channel 21 of the rod 20 AASA communication with the chamber 25, the chamber 25 through the connecting fitting 33 - with a source of one szhag gas chamber 26 through the injector 3 and to the chamber 27 with the respiratory tract of the patient. Chamber 27 through the fitting 34 is bonded with the atmosphere through the nozzle 18 - with the chamber 23, and brood shtuje | 35 in the mask 6 with the respiratory tract patsnevt. The device works "le uyuschim way. From the gas source I snsatrg dghatelyny gas such as kisporr through fitting 33 into the chamber 23 and the membrane under yavleviem 8 assigns rod 20, biasing spring 13 is in its upper poloisevve. From chamber 25 via the gas enters through 2t pnevmosoprotivlenie 22 and chamber 24 After davleshe and gas chamber 24 becomes equal to the pressure in the chamber 25, the piston rod 20 under de At number 13 perebrasyvaets it springs to its lowest position, abuts the valve 10 and poazhima spring 14 opens the nozzle 17. After VTOGO gas flows from chamber 25 into chamber 26 creates tsavlenie the diaphragm 9 moves the injector 11 with the flap 3. downwards, urged by the spring 15 and closes the nozzle 18. Simultaneously, gas flows from the chamber 26 the injector 3, and through podsasyva shtu CER air from the atmosphere 34 flows into the fault respiratory gas through the nozzle 35 and the mask 6 in the patient's airways. Begins the act of inhalation. As breathing gas filling Lung podmasochnom pressure space rises, and the gas flows through the duct 5 into chamber 23. Upon reaching the lungs and the pressure chamber 23 is defined rigid diaphragm 7 to the center 19, biasing spring 12 is retracted to its upper position, the nozzle 16 is opened and pressurized gas from the chamber 24 enters the chamber 23 and the air duct 35 through the fitting 5 and the mask 6 pgschienta lungs. After ssvozhdeni chamber 24 from pressurizing rod 20 is retracted to its initial upper position, the nozzle 17 is locked by the action of damper 10 pru-, zhiny 14 PZA pressure in chambers 26 and 27 is equalized and the injector valve 11 to 3 under the action of the spring 15 is retracted to its initial upper position, and the nozzle 18.otkryvaets gas outlet of the lungs and the atmosphere chamber 23. Begins the act of passive exhalation.Pause length is equal to vschoha passive filling time of the chamber 24 through the gas pnevmosoprotivlenie 22 to a pressure equal to the pressure in the gas chamber 25. Act inspiratory duration equal to the time of filling the gas to the lungs dyhatelglym installed pressure regulator 4. Operation time when stock kitty 200 l is greater than 60 min. Thus, the construction of the device allows to increase the reliability and stability of the machine in automatic mode, to reduce gas consumption by almost 4 times, due to which the life of the machine from one oxygen tank, smart sheny size 1.5 times, and the weight of the machine 2 times. Formula invention n and I. Apparatus for artificial pulmonary ventilation, comprising a socket connection to a source of compressed gas switchgear, pressure regulator inhalation pereklyuchakntsy mechanism injector nerevers vvyvGklapav, ducts and respiratory mask otlichayushnys that, for the purpose sokrasheni gas rate reduction of dimensions, switchgear, pereklyuchakitsy mechanism and irreversible valve made in the form of three-diaphragm pneumatic relay, first ua membranes which is rigidly connected to the injector head, the second - with the rod is equipped by nvevmoorprotivle tion, a third is associated with respiratory mask vovtuhovotsom. 2. Apparatus according to claim 1 of m and l h w and u dc and that a pressure regulator is constructed and inspiratory trehpozntsionnoy a button, Sources of information received into account in the examination of: 1. Mr. Sobolev, G. Mine-rescue intact. M. Netsra, 1972, p. 93-100. and

Probable Assignee: VNII GORNOSPASATE

Earliest Publication Date: 19780425

21) Family number: 43305649 (US2009133695A)

MECHANICAL VENTILATOR SYSTEM

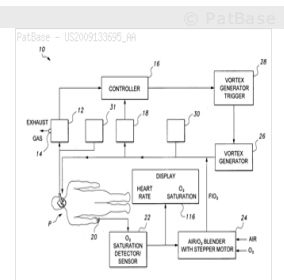
Abstract: Source: US2009133695A The mechanical ventilator system is a compact and portable artificial respiration system. A negative pressure vortex generator delivers an FiO2 mix from an air-oxygen blender to the patient during the patient's inhalations, but remains idle during the patient's exhalations. Exhaust gases generated by the patient are released through an exhaust gas valve. During operation, the patient's oxygen saturation level is measured by an infrared pulse-oxygen probe, and an FiO2 autoregulator is in communication with the probe to receive oxygen saturation level signals. The FiO2 autoregulator is coupled with the air-oxygen blender to control the oxygen proportion of the FiO2 mix. An automatic pressure flow sensor is fluidly coupled with the patient's airway to control actuation of the negative pressure vortex generator. The automatic flow sensor is coupled with a controller, which actuates a vortex generator trigger circuit in communication with the vortex generator.

Probable Assignee: SIRIWARDENA MAPATUNAGE A

Earliest Publication Date: 20090528

22) Family number: 57998427 (CN203989428U)

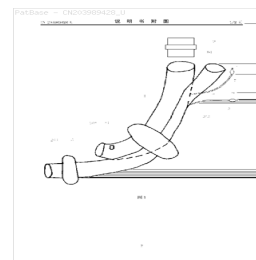
ESOPHAGEAL TRACHEAL COMBITUBE ALLOWING CATHETER INSERTION



Abstract: Source: CN203989428U The utility model discloses an esophageal tracheal combitube allowing catheter insertion. The esophageal tracheal combitube comprises an esophagus catheter, a ventilation catheter, an esophagus cuff, a pharyngeal cuff, a first inflation tube, a second inflation tube, a first inflation valve and a second inflation valve, wherein the near end of the esophagus catheter is arranged behind the near end of the ventilation catheter, the middle end of the esophagus catheter is divided into two branches located on the two sides of the ventilation catheter, the far end of the esophagus catheter is an integral body which is arranged at the far end of the ventilation catheter in a protruding mode, the diameter of the ventilation catheter is larger than that of the esophagus catheter, the inner diameter of the ventilation catheter is larger than the outer diameter of a tracheal catheter, and a far end opening of the ventilation catheter is located between the esophagus cuff and the pharyngeal cuff. According to the esophageal tracheal combitube, when patients need to be moved or an artificial airway needs to be reserved for a long time, the tracheal catheter can be inserted in through the ventilation catheter directly while the original airway is reserved, so that the risk of anoxia of patients is reduced.

Probable Assignee: CHEN HUI

Earliest Publication Date: 20141210



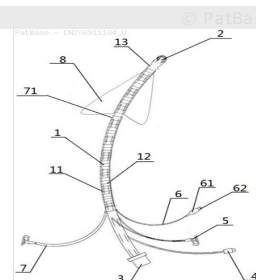
23) Family number: 74529736 (CN208911184U)

VISUAL ARTIFICIAL AIRWAY

Abstract: Source: CN208911184U The utility model discloses a visual artificial airway. The utility model belongs to the technical field of medical instruments, the ventilation cavity pipe comprises a hollow ventilation cavity pipe body and an inner channel buried in the pipe wall of the ventilation cavity pipe body. the ventilation cavity tube body is provided with an air bag corresponding to the glottis part of a patient; their bag is connected with an inflation pipe through an inner channel of the ventilation cavity pipe body. the inflation tube is provided with a pressure valve inflation port at the tail section of the ventilation cavity tube body; a pressure sensing air bag is arranged between the pressure valve inflation inlet and the inflation pipe. a visual device is arranged at the top of the ventilation cavity tube body; the visual device comprises a camera and a spray head; the trachea cannula has the advantages that dirt can be prevented from entering the trachea from the esophagus to cause trachea inflammation, and the glottis ligament of a patient is prevented from being injured by insertion when the ventilation cavity tube body is inserted into the glottis of the patient.

Probable Assignee: ZHEJIANG KANGDE PHARMACEUTICAL CO LTD

Earliest Publication Date: 20190531



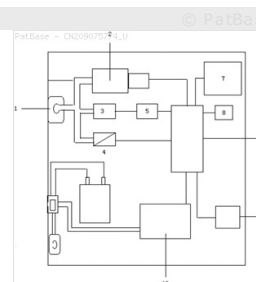
24) Family number: 75024838 (CN209075774U)

ARTIFICIAL AIRWAY AIRBAG PRESSURE INTELLIGENT MANAGEMENT SYSTEM APPLIED TO INTENSIVE CARE

Abstract: Source: CN209075774U The utility model discloses an artificial airway air bag pressure intelligent management system applied to intensive care. The artificial airway air bag pressure intelligent management system comprises an air bag, an air pump, a pressure sensor, an electromagnetic valve, an AD chip, a single chip microcomputer, a liquid crystal display screen, a keying circuit, an audible and visual alarm and a power source. The air bag interface is connected with the input end of the pressure sensor, the air pump interface and the electromagnetic valve interface through silicone tubes and tee joints to form a pressure monitoring pipeline; the system monitors the pressure in the air bag in real time, prompts monitoring when detecting that the pressure is within a threshold range, gives a sound-light alarm when the pressure exceeds the upper limit of the pressure, and controls the electromagnetic valve to deflate to enable the pressure to be lower than the upper limit; when the pressure is lower than the lower limit of the pressure, the system controls the air pump to inflate, so that the pressure reaches a normal range; according to the system, intelligent management of the air bag pressure is effectively achieved, the occurrence probability of ventilator-related pneumonia is reduced, damage to the airway mucous membrane is reduced, and the system has important significance in mechanical ventilation treatment of a patient.

Probable Assignee: UNIV ZHEJIANG

Earliest Publication Date: 20190709



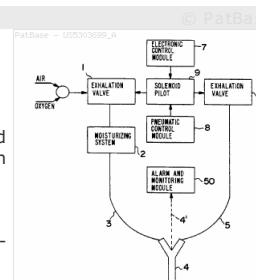
25) Family number: 11530794 (US5303699A)

INFANT VENTILATOR WITH EXHALATION VALVES

Abstract: Source: US5303699A A ventilator device for artificial ventilation use in infant and pediatric wards, and which may be adapted for use with adult patients as well. The ventilator device comprises a pressure control system having at least two parallel connected exhalation valves, a pressure monitoring system having bar display, optical sensors attached to the bar display, and an alarm system with a "no break" system including a rechargeable battery. One of the exhalation valves is connected at the beginning of the inspiratory airway and this valve is coupled with a moisturizing system. An inspiratory tube connected to the moisturizing system is connected to one branch of a "Y" connector where the other branch of the "Y" connector is connected to an expiratory tube leading to the other exhalation valve at the end of the expiratory airway. These exhalation valves are controlled by electronic control modules and pneumatic control through 3-way 2-position solenoid valves. These devices are capable of controlling pressure, controlling inspiratory and expiratory times, and regulating and monitoring the ratio between the inspiratory and the expiratory times. The ventilator is particularly effective in that it is capable of controlling pressure in the event of an obstruction which often increases the pressure above a safe limit, thus possibly resulting in rupturing of the lungs. The device is capable of providing a continuous flow with timed cycles and pressure control in order to guard against a sudden increase or decrease of pressure in the ventilator.

Probable Assignee: INTERMED EQUIPAMENTO MEDICO HO

Earliest Publication Date: 19940419



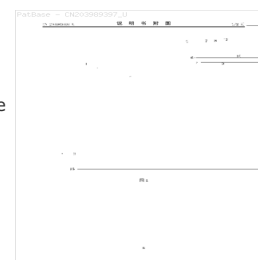
26) Family number: 57997640 (CN203989397U)

DUAL-PURPOSE CLOSED SPUTUM-ASPIRATING TUBE FOR ARTIFICIAL AIRWAY

Abstract: Source: CN203989397U The utility model discloses a dual-purpose closed sputum-aspirating tube for an artificial airway. The dual-purpose closed sputum-aspirating tube comprises a sputum-aspirating tube, a transparent protective sleeve and a negative-pressure suction control valve, wherein the two ends of the sputum-aspirating tube are connected with the negative-pressure suction control valve and a sputum-aspirating connector respectively; the transparent protective sleeve seals and covers the sputum-aspirating tube and the two ends of the transparent protective sleeve are connected with the negative-pressure suction control valve and the sputum-aspirating connector respectively; the negative-pressure suction control valve is provided with a negative-pressure machine connector and the sputum-aspirating connector is provided with a washing connector, an opening and closing device, a humidifying connector, a conversion connector, an aspirating opening and an artificial airway connector; the conversion connector is movably connected with an aspirating machine connecting piece or an oxygen tube connecting piece; the aspirating opening is provided with a sealing cover capable of being opened and closed. The sputum-aspirating tube can be easily converted between the closed sputum-aspirating tube needed by mechanical ventilation and a semi-closed type sputum-aspirating tube with pipe ventilation; microorganisms can be prevented from breeding in the sputum-aspirating tube to pollute air and crossed infection is reduced; the connecting piece is replaced to change a use function so that the dual-purpose closed sputum-aspirating tube is very convenient to use; the economical burden on patients are relieved and the working efficiency of medical personnel is improved.

Probable Assignee: JIANGSU PROVINCIAL PEOPLES HOSPITAL

Earliest Publication Date: 20141210



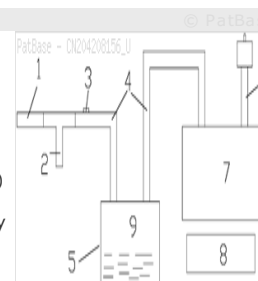
27) Family number: 58718992 (CN204208156U)

HIGH-FLOW HUMIDIFYING OXYGEN SUPPLYING DEVICE FOR ARTIFICIAL AIRWAY

Abstract: Source: CN204208156U The utility model discloses a high-flow humidifying oxygen supplying device for an artificial airway. The high-flow humidifying oxygen supplying device comprises a water accumulation cup (5) connected with a humidification pot (7) through a ventilator pipe (4) at the right end, wherein a venturi valve (6) connected with an oxygen source is arranged on the humidification pot (7); an active heated humidifier (8) is arranged below the humidification pot (7); the water accumulation cup (5) is connected with a T-shaped pipe (3) through a ventilator pipe (4) at the left end; a temperature measuring hole (2) is formed in the ventilator pipe (4) at the left end; an extending pipe (1) is connected to the left end of the T-shaped pipe (3); the ventilator pipe (4) and the T-shaped pipe (3) are seamlessly connected; the ventilator pipe (4) and the water accumulation cup (5) are seamlessly connected; the ventilator pipe (4) and the humidification pot (7) are seamlessly connected; sterile water (9) for injection is accommodated in the humidification pot (7). According to the high-flow humidifying oxygen supplying device, the defects that the operation is complex, and the stability and the effect cannot be guaranteed in the traditional high-flow humidifying oxygen supplying device are overcome; the high-flow humidifying oxygen supplying device has the advantage of good humidifying effect for a sterile environment.

Probable Assignee: UNION HOSPITAL TONGJI MEDICAL COLLEGE HUAZHONG UNIV SCI AND TECH

Earliest Publication Date: 20150318



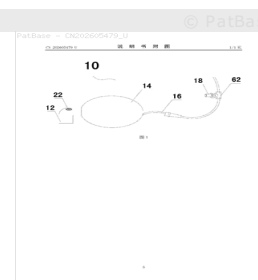
28) Family number: 52630768 (CN202605479U)

ARTIFICIAL AIRWAY OXYGEN INHALATION CATHETER

Abstract: Source: CN202605479U The utility model provides an artificial airway oxygen inhalation catheter which comprises a main body catheter, an elastic air bag, an oxygen supply tube and an automatic reset safety valve controlled by pressure, wherein one end of the main body catheter is an opened trachea connection port, and the other end of the main body catheter is connected with the elastic air bag. The elastic air bag is connected with the oxygen supply tube which is connected with the automatic reset safety valve through a three-way pipe. A mesh-shaped hollow ventilation hole is arranged on the main body catheter. The artificial airway oxygen inhalation catheter can provide large oxygen flow quantity, simultaneously can achieve the purpose of monitoring breathing conditions of patients in real time and reducing discomfortable symptoms of the patients in catheter inserting, and is improved in safety.

Probable Assignee: MAO JIEHUA

Earliest Publication Date: 20121219



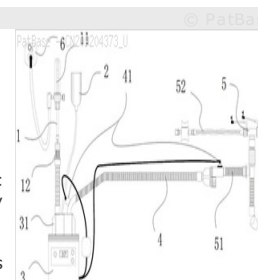
29) Family number: 75350946 (CN209204373U)

HIGH-FLOW HUMIDIFYING OXYGEN THERAPY CLOSED SUCTION STRUCTURE FOR ARTIFICIAL AIRWAY

Abstract: Source: CN209204373U The utility model provides a high-flow humidifying oxygen therapy closed suction structure for an artificial airway, and belongs to the technical field of medical equipment. An artificial airway high-flow humidification oxygen therapy closed suction structure comprises an oxygen supply device, a liquid supply device, a temperature humidification device, a heating device and a breathing device. According to the utility model, the automatic pressure-regulating oxygen flow meter and the venturi air-oxygen mixing valve are combined to form the oxygen supply device, and the oxygen supply device and the liquid supply device are connected to the temperature and humidity device in parallel; the inhaled gas flow rate of the patient is guaranteed, the risks that the oxygen concentration and the temperature humidification effect are reduced and other complications of the patient are increased due to insufficient gas flow rate are avoided, and the problems that an active humidification oxygen therapy device brings extra invalid cavities to ventilation of the patient and airway resistance is increased are solved; the closed sputum suction tube is arranged on the breathing device, so that the risk of cross infection caused by open sputum suction is avoided, and the safety guarantee is high; temperature detection devices are arranged at the two ends of the heating device, and more accurate gas temperature is obtained through comparison.

Probable Assignee: 2ND PEOPLES HOSPITAL SHENZHEN

Earliest Publication Date: 20190806



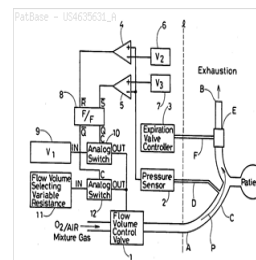
30) Family number: 5188923 (US4635631A)

ARTIFICIAL RESPIRATION VENTILATOR OF AIR CONSTANT FLOW

Abstract: Source: US4635631A A respiratory circuit for an artificial inspiration ventilator is characterized in that it controls a volume of an O₂/air constant flow as being substantially reversely proportional to a positive and negative airway pressures by patient's own respiration. The respiratory circuit comprises a pressure sensor for detecting an inner pressure of the respiratory circuit, a comparator for comparing the inner pressure with reference values prescribed by reference voltages, and a switching circuit responsive to the results of the comparator for switching a valve passing the O₂/air constant flow.

Probable Assignee: SHARP KK

Earliest Publication Date: 19850603



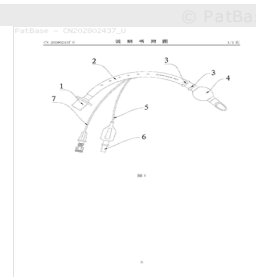
31) Family number: 53311966 (CN202802437U)

TRACHEA INTUBATION DEVICE WITH ANESTHESIA SPRAY MECHANISM

Abstract: Source: CN202802437U The utility model discloses a patient for an artificial airway intubation in the implementation process of the throat anesthetic injection to reduce the pain of patients intubated intubation device; this utility model aims to provide a throat hemp intubation device was sprayed evenly, spray large surfaces with anesthetic spray mechanism; in clinical hospitals, its use in surgery require general anesthesia or create patient artificial airway time; it includes a tubular body, the airbag inflator valve said one end of the ventilator tube in contact header, the side airbag in the insertion end and coated tubes in vitro, the pneumatic valve is connected via a pneumatic tube and the balloon; it also includes anesthetic spray bag said at least two spray bladder, the bladder is located near the balloon spray at the spray sac circular hollow tube, said spray bladder located on the tube and the tube communicating with the anesthetic; the spray said balloon has a plurality of spray holes on the outer circumferential direction; it has a narcotic effect, simple operation.

Probable Assignee: ZHEJIANG RUNQIANG MEDICAL EQUIPMENT CO LTD

Earliest Publication Date: 20130320



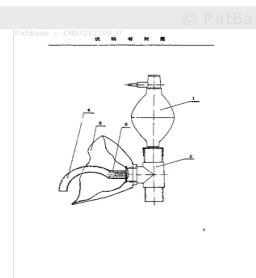
32) Family number: 17085716 (CN87212799U)

DUAL-PURPOSE SIMPLE ARTIFICIAL RESPIRATOR FOR MOUTH-TO MOUTH RESPIRATION OR GASBAG RESPIRATION

Abstract: Source: CN87212799U The utility model discloses a dual-purpose simple artificial respirator for a mouth-to mouth respiration or a gasbag respiration, comprising a respiration ball, a three-way with a one-way respiration valve, a mask and an arc-shaped bent tube used as a respiration tube. When in use, tightness is good, which ensures the effective ventilation and prevents the airway obstruction causing by the boneptosis. The utility model has the advantages of convenient portability, simple operation.

Probable Assignee: SHANDONG PROVINCIAL HOSPITAL

Earliest Publication Date: 19880810



33) Family number: 46697522 (CN201543076U)

DOUBLE-CHAMBER TRACHEA CANNULA CONDUIT

Abstract: Source: CN201543076U The utility model belongs to the field of a medical instrument, concretely relates to a tracheae conduit capable of performing the artificial ventilation and cleaning the respiratory tract simultaneously. The utility model discloses a double-chamber trachea cannula conduit, comprising a tracheae conduit body, wherein, a through hole is arranged at the end of the tracheae conduit near the airway interface. The double-chamber trachea cannula conduit also comprises a suction tube, the lower section of the suction tube penetrates through the through hole and is arranged in the tracheae conduit, the end of the upper section of the suction tube is provided with a connection part connected with a syringe or a phlegm sucker, and the connection part is provided with a piston valve. The double-chamber trachea cannula conduit can rapidly recover the breathing of a patient, prevent the neonatal and infant aspiration pneumonia, and can be also used as an intratracheal administration approach.

Probable Assignee: FIRST AFFILIATED HOSPITAL SOOCHOW UNIV

Earliest Publication Date: 20100811

