

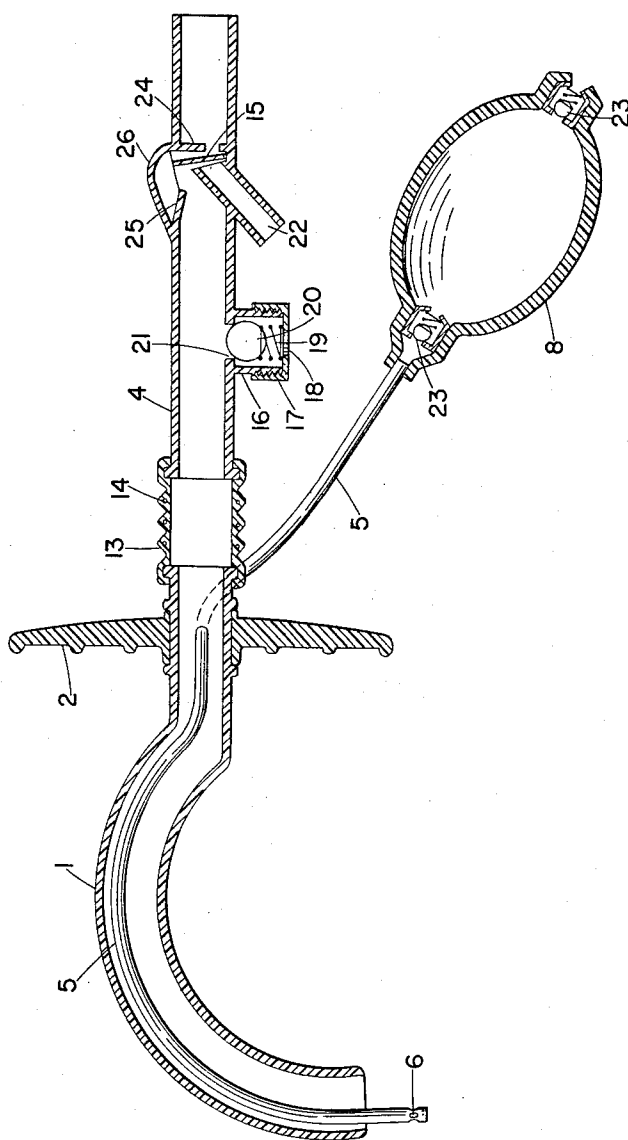
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RESUSCITATOR

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RESUSCITATOR

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1 Claim. (Cl. 128—29)

This invention relates to resuscitators.

As is known, a great number of fatalities occur due to suffocation caused by drowning accidents, electrocution and the like. In many such accidents, revival of the victim has been brought about by normal known methods of manual artificial respiration. However, in many cases, such methods have proved ineffective.

A still further method of artificial respiration which has been successfully employed is known as the "mouth-to-mouth" method. In this case, which is the oldest known method for reviving victims of asphyxiation, the mouth of the person applying the method is placed next to the mouth of the victim and air from the lungs of the former is physically blown into the victim's lungs. It has been found that the revival rate is as high, if not more so, than known manual forms of artificial respiration.

However, the "mouth-to-mouth" method has several disadvantages, firstly that whereas the person applying the method has no hesitation in intimate physical contact if the victim is a baby or a small child, there is a certain amount of diffidence when the victim is an adult. Secondly, in the case of a victim of a drowning accident, there is generally a considerable amount of mucus at the back of the victim's throat which must firstly be removed if successful respiration is to be accomplished and such removal presents difficulties.

Thus, the invention has for its object the provision of a simple and inexpensive resuscitating device for accomplishing "mouth-to-mouth" artificial respiration and simultaneously overcoming the above disadvantages.

Accordingly, this invention relates to a resuscitator comprising a primary tube defining an air passage for blowing air into a patient's lungs and an arcuate, flexible oro-pharyngeal tube and a corrugated, non-collapsible, flexible tube connecting the oro-pharyngeal tube to the primary tube, a non-return valve disposed in the air passage and cooperating with an atmospheric outlet in the primary tube and a suction tube disposed in the oro-pharyngeal tube for removing mucus and secretions from the back of the patient's throat.

The invention is illustrated by way of example in the accompanying drawings in which the single figure is a longitudinal sectional view of the preferred embodiment of this invention.

Referring now more particularly to the drawing, the resuscitator comprises an arcuate, flexible oro-pharyngeal tube 1 adapted to be inserted into the patient's mouth and of a length to extend beyond the base of the tongue in near proximity to the pharynx so as to provide an unobstructed air passage to the patient's lungs. The oro-pharyngeal tube has a straight outer end on which is suitably mounted a flange 2 providing a mouth guard to overlie the patient's mouth. The resuscitator further comprises a primary tube 4 which has opposing ends, the outer end being adapted to be in communication with the mouth of the rescuer. The inner end of the primary tube 4 and the outer end of the oro-pharyngeal tube 1 are connected by a corrugated, non-collapsible, flexible tube 13, which is suitably re-enforced with a helical spring 14. The corrugated flexible tube 13 permits relative angular movement between the oro-pharyngeal tube and the primary tube without obstructing the air flow therebetween.

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A flexible suction tube 5 is disposed within the oro-pharyngeal tube and extends outwardly therefrom through a suitable opening in the outer, straight end, adjacent the mouth guard 2. The suction tube is provided at its inner end with a plurality of apertures 6 disposed about its periphery. The suction tube extends beyond the outer end of the oro-pharyngeal tube a suitable distance and has a suction bulb 8, which constitutes suction means, connected to its outer end. The bulb 8 is provided with a pair of axially aligned ball valves 23 each of which is seated on a helical compression spring.

The primary tube 4, adjacent the distal end of the device, is provided with a flap valve 15 which, when air is blown into said tube, is adapted to seat itself on the inner end of an outlet tube 22 formed in said primary tube 4.

Located in that portion of the primary tube 4 between the distal end thereof and the flexible hose 13 is an outlet 21 which leads to a stub tube 16 threaded at its lower end. The tube 16 has a correspondingly threaded cap 17 in engagement therewith, the latter being provided with a central orifice 18 and supporting a helical compression spring 19 which is seated thereon. As will be seen from the drawing, the upper end of the helical spring 19 urges a ball valve 20 into engagement with the outlet 21 to resiliently close the latter.

As will be seen from reference to the drawing, the inner periphery of the primary tube 4 is provided with a pair of projections 24, 25 located respectively upstream and downstream of the flap valve 15 which considerably restrict the flow, and hence the amount of air being blown into the distal end of the primary tube 4. It will also be noted that whereas the flap valve is of such dimensions as completely to close the outlet tube 22 when air is being blown into the resuscitator and completely to close the restricted opening existing between the upstream projection 24 and the inner periphery of the primary tube 4, its dimensions are such that it can never seal the restricted opening existing between the downstream projection 25 and said inner periphery of the primary tube 4. Moreover, a portion of the primary tube 4 located between said projections 24 and 25 is enlarged, as at 26, so as to form a venturi.

The operation of the device is such that air is forcibly blown into the lungs of the victim through the proximal end of the device, and this pressure automatically urges the flap valve 15 into engagement with outlet tube 22 and effectively seals the latter. Of course, depending upon the victim, considering whether the latter be a child, medium or adult, the cap 17 can be threadably adjusted on the stub tube 16. This effects compression of the spring 19 which maintains the ball valve 20 in operative position. Thus, it will be seen that, depending upon the size and age of the victim, too great a force of air being blown into the device will effectively be controlled by the ball valve 20 lifting from its seating and permitting the said excess to escape to atmosphere. Moreover, the provision of the ball valve 20 effectively controls any excessive volume of air being blown into the victim's lungs. The exhaled air of the victim will pass up the oro-pharyngeal tube 1 and into the primary tube 4 and, due to the reverse direction of flow of air, the flap valve 15 will effectively seal off communication with the proximal end of the tube 4 by seating itself upon the upstream projection 24, and hence the air will escape to atmosphere through the outlet tube 22. Thus, it will be appreciated that the device does not permit the exhaled air of the victim to contaminate the mouth of the person applying the resuscitating, and the flap valve 15 effectively prevents regurgitated mucus, saliva or vomitus from reaching the operator's lips and lessens the likelihood of transfer of communicable disease from victim to operator.

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It will be appreciated that the corrugated connecting tube 13 will permit flexibility between the oro-pharyngeal tube and the primary tube 4 thus permitting the victim to be at one angle and the person applying the method to be at another. This is an important factor where the victim may be pinned by debris such as in mining cave-ins or in otherwise inaccessible positions.

The oro-pharyngeal tube 1 is formed of rubber, either natural or artificial, as is the primary tube 4 and suction tube 5, to permit utmost relative flexibility of the components.

I claim:

A resuscitator for blowing air into a patient's lungs comprising a primary tube defining an air passage, said tube having opposing open ends, one of said ends being adapted to be in communication with the mouth of the rescuer, an arcuate, flexible oro-pharyngeal tube adapted to be inserted into a patient's mouth and to provide an unobstructed air passage to the patient's lungs, said oro-pharyngeal tube having a straight outer end, a flange on said end providing a mouth guard to overlie the patient's mouth, a relatively short, corrugated, non-collapsible, flexible tube connecting said outer end of said oro-pharyngeal tube adjacent the flange to the other end of said primary tube and permitting relative angular movement between said tubes without obstructing the air flow therebetween,

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a non-return valve disposed in the air passage and said primary tube having an outlet communicating the air passage with the atmosphere downstream of and cooperating with the valve which permits expelled air of the victim to pass to the atmosphere before reaching the end of the primary tube at the rescuer's mouth, a suction tube disposed in the oro-pharyngeal tube for removing mucus and secretions from the patient's throat and suction means operatively connected to said suction tube.

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