

[54] RESUSCITATOR

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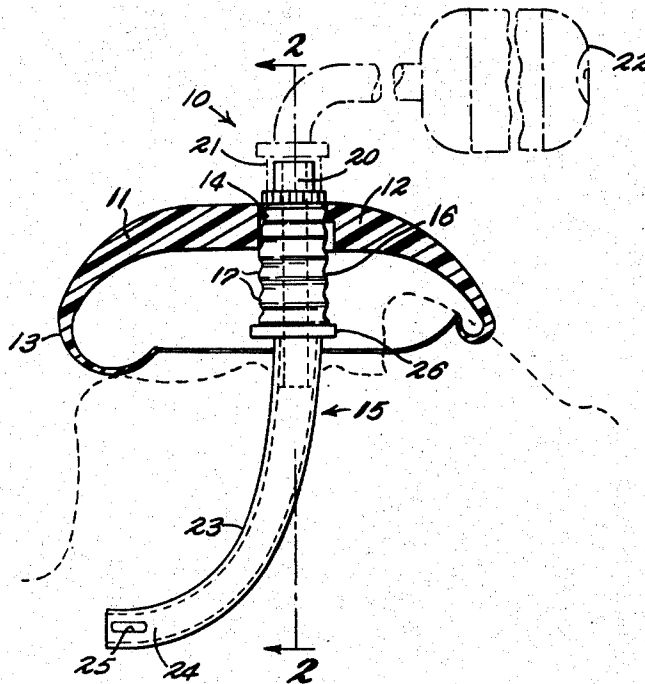
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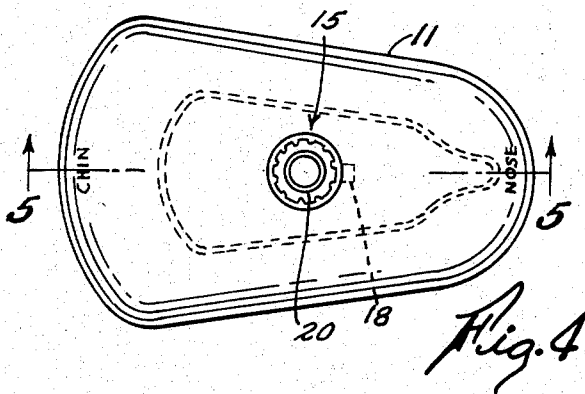
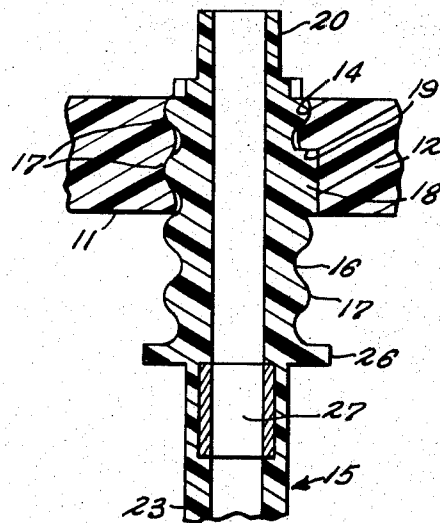
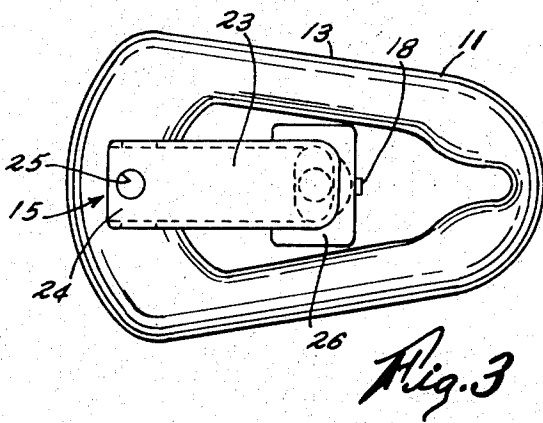
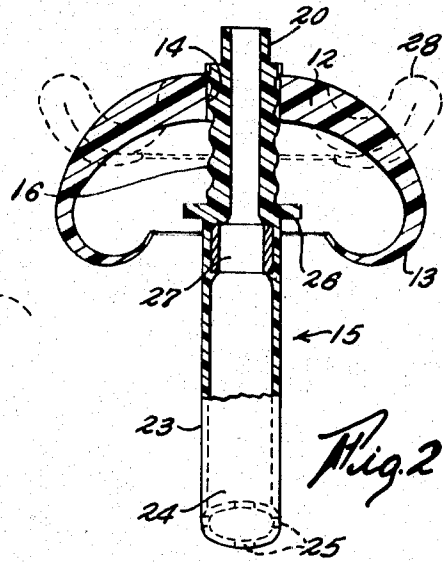
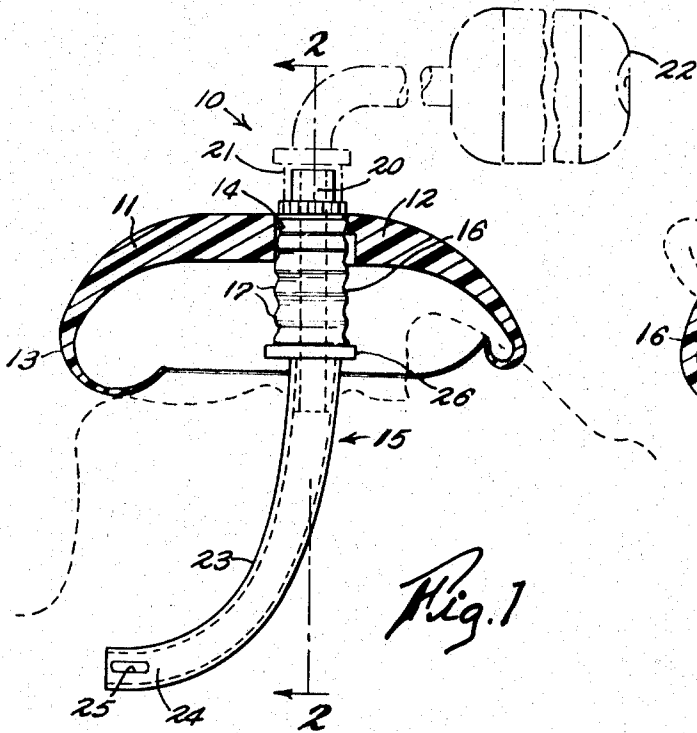
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ABSTRACT

This invention is directed to a resuscitator having a combined face mask and air-way that is particularly useful in hospital emergency rooms and which facilitates the manual placement and subsequent ventilation of a patient's lungs in a positive and reliable manner.

5 Claims, 5 Drawing Figures





1 RESUSCITATOR

The present invention relates to a resuscitator and is specifically directed to a novel air-way and face mask combination which facilitates the securement of an effective apparatus for supporting a patient's artificial breathing.

BACKGROUND OF THE INVENTION

During resuscitation proceedings in emergency room practice the ventilation of a patient's lungs is usually an extremely difficult, if not impossible task, leading in many cases to an unsuccessful resuscitation. Conventionally a face mask connected with a manually operated air bag respirator is used with a separate oral air-way to provide positive pressure breathing. During this procedure air that is forced by the bag into the space between the mask interior and the patient's face often tends to force the patient's cheeks away from the periphery of the mask allowing air that should enter the air-way to leak therebetween, especially in the adentulous patient whose cheeks tend to naturally sink in under exterior pressure. Further partial or complete obstruction of the air-way by the patient's tongue or lips increases the air leakage between the face mask and the patient's cheeks.

An alternative to the foregoing procedure is to force air from the operator's mouth directly through an oral air-way which avoids the air-way obstruction problem but which is also often ineffective because of air leakage around the outside of the air-way and out through the patient's mouth or air leakage out of the nose or the inherent instability of the airway sticking some distance out of the mouth.

SUMMARY OF THE INVENTION

It is therefore an object of this invention to provide a combination oral air-way and face mask that will insure the full and effective delivery of resuscitating air to a patient's lungs in a quick and efficient manner thereby facilitating and creating more reliable resuscitation practices.

Another object of the invention is the provision of a face mask and air-way that has a minimum of air leakage through the expedient of delivering air directly to the posterior oro-pharynx with the resultant natural puffing out of a patient's cheeks into the periphery of the mask thus sealing and preventing further loss of air pressure.

A further object of the invention is to provide a very stable air-way and face mask combination that can be grasped in one hand by its face mask for the positive insertion of the air-way into the patient's throat and which will also permit the operator to hold the patient's chin forward with the same hand that he holds the face mask thus allowing him to further improve resuscitation by this generally accepted method.

Further objects of the invention will be apparent from the following specification taken in conjunction with the accompanying drawings, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a central section through my combination air-way and face mask shown in operative position with a patient's face that is shown in dotted lines, the dot-and-dash lines depicting an air bag respirator and its connection with the air-way.

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FIG. 2 is a section taken on line 2—2 of FIG. 1.

FIG. 3 is an elevational view showing the interior of the air-way and face mask.

FIG. 4 is an elevational view showing the exterior of the air-way and face mask shown in FIG. 1.

FIG. 5 is an enlarged, fragmental sectional view taken on line 5—5 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to FIG. 1 of the drawings the resuscitator 10 has a face mask 11 made from a somewhat flexible and transparent resinous material, the central body portion 12 being dome-shaped and relatively thick and therefore less flexible while the periphery 13 of the mask has an attenuated, highly flexible and inwardly curved formation that conforms closely to the configuration of the human face around the nose and the mouth features. The central body portion of the face mask is provided with an opening 14 which is disposed in substantial alignment with a patient's mouth, the opening being preferably circular in form and having a smooth internal wall.

A tubular air-way member 15 is removably fitted through the opening 14 in the face mask and is preferably molded in one-piece from a relatively inflexible resinous plastic material. A slip joint is formed between the air-way member and the face mask by providing its exterior, mask engaging portion 16 with a series of longitudinally spaced apart, circular ribs 17 whose crests have diameters slightly larger than the internal diameter of the opening 14 in the face mask. By axially forcing the face mask engaging portion 15 of the air-way member into the opening 14 from the interior side of the mask a firm but detachable slip joint is provided between the face mask and the air-way member. As best shown in FIGS. 3 and 5 of the drawings the portion 16 of the air-way member has a narrow, longitudinally disposed key 18 which projects beyond the crests of the ribs 17 and cooperates with a blind-end slot 19 formed in the opening 14 to act as a limit stop for the face mask and the air-way member and to also preclude the improper assembly of said mask and the air-way member.

The outer free end of the air-way member is provided with a standard fitting 20 adapted to form a tight detachable connection with a hose connector 21 of a conventional respirator bag 22, it being understood that in the absence of said bag said fitting 20 may act as a mouth piece in mouth-to-mouth resuscitation procedures.

The air-way member also has a curved end portion 23 adapted to be inserted through a patient's mouth into the throat, the terminal end 24 of the curved portion being open and also provided with a series of holes 25 formed in the sides thereof. Intermediate the curved portion 23 and the mask engaging portion 16 the air-way has a rectangular shield 26 projecting laterally from its exterior face, a hard plastic bite sleeve 27 being molded into the member adjacent the shield 26 on the oral side of said member.

OPERATION

As best illustrated by dotted lines 28 in FIG. 2 of the drawings my combination air-way member and face mask is initially placed in condition for insertion into a patient's mouth by manually grasping the sides of the

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face mask and flexing them together and forwardly into the said dotted line condition. In this condition the operator has excellent control and unobstructed visibility for manipulation of the air-way into the patient's mouth. When the operator is satisfied that the air-way is properly positioned, the face mask sides are released and the resuscitator assumes the position relative to a patient's face depicted in FIG. 1 of the drawing whereby upon further inward pressure on the resuscitator the attenuated periphery 13 of the face mask will engage the patient's face around his nose and mouth to form an effective, air-tight seal between the mask and the patient's face and cheeks. The resuscitator bag is now connected to the air-way fitting 20 and resuscitation proceeds in the usual manner it being noted that full resuscitating air will be delivered to the patient's lungs and any leakage that might occur around the curved portion 23 and the patient's throat and through the teeth will tend to puff out the patient's cheeks and increase the effective seal between the attenuated portion 13 of the face mask and the patient's face, helping to prevent air leakage from the now tightly sealed space between the interior of the face mask 11 and the patient's face.

What is claimed is:

1. In a resuscitator which facilitates the manual placement and subsequent ventilation of a patient's lungs, a face mask having an attenuated periphery adapted to engage a patient's face around the nose and mouth, an opening formed substantially through the center of said face mask, a tubular air-way member removably mounted in said opening, said tubular air-way member having a straight portion extending axially through said opening and projecting beyond the inner and outer sides of said face mask, a detachable joint securing said straight portion to said face mask, said straight portion having a series of longitudinally spaced exterior ribs having crests thereon formed on a large diameter than the interior diameter of said opening and a longitudinal key projecting from said straight portion radially outwardly from said ribs, a key receiving, blind end slot formed in the body of said face mask and in

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open communication with said opening, a curved end portion on the inner side of said air-way adapted for insertion into a patient's mouth, and a fitting on the outer end of said air-way to serve as a connection to a respirator bag and as a mouth piece for use in mouth-to-mouth resuscitation procedures.

2. In a resuscitator which facilitates the manual placement and subsequent ventilation of a patient's lungs, a dome-shaped face mask having a relatively thick central body portion and an attenuated, flexible periphery curved inwardly to terminate in a thin, marginal edge adapted to engage a patient's face around the nose and mouth and to provide an air-tight seal therebetween, detachable coupling means comprising an opening formed substantially through the center of said face mask, a tubular air-way removably mounted in said coupling means, said tubular air-way member having a straight portion extending axially through said coupling means and projecting beyond the inner and outer sides of said face mask, a curved end portion on the inner side of said air-way adapted for insertion into a patient's mouth, and a fitting on the outer end of said air-way to serve as a connection to a respirator bag and a mouth-piece for use in mouth-to-mouth resuscitation procedures.

3. The resuscitator set forth in claim 1 wherein a mouth engaging shield projects from the air-way member intermediate it's straight portion and it's curved portion.

4. The resuscitator set forth in claim 3 wherein said straight portion is provided with a series of longitudinally spaced exterior ribs having crests thereon formed on a large diameter than the interior diameter of said coupling means in said face mask.

5. The resuscitator set forth in claim 4 wherein said coupling means further comprises a longitudinal key projecting from said straight portion radially outwardly from said ribs, and a key receiving, blind end slot in the body of said face mask and in open communication with said coupling means.

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